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CLINICAL LECTURES

ON

COMPOUND FRACTURES

OF THE

EXTREMITIES,

ON

EXCISION OF THE HEAD OF THE THIGH-BONE,

THE

ARM-BONE AND THE ELBOW-JOINT.

ON THE

DISEASES OF THE PENINSULA,

AND ON

SEVERAL MISCELLANEOUS SUBJECTS.

DELIVERED AT THE WESTMINSTER HOSPITAL.

BY G. J. GUTHRIE, F. R. S.

SURGEON TO THE WESTMINSTER HOSPITAL, TO THE ROYAL WESTMINSTER OPHTHALMIC HOSPITAL,
ETC. ETC. ETC.

PHILADELPHIA:

PUBLISHED BY A. WALDIE, NO. 46 CARPENTER STREET.

1839.

THESE Lectures, now almost reduced in their printed form to surgical aphorisms, have been delivered for the last twenty-two years to the medical officers of the various branches of the public service gratuitously, together with those embracing the whole range of surgery. The author's practice in the two hospitals to which he is attached, has been, and is, equally at their service. On ceasing to lecture, he may venture to say he has done that privately, which ought to be done publicly by the government; which is done so in Edinburgh, and by every sovereign in the great capitals of Europe. Young men as well as old ones require, after a few years of absence from home, to renew the knowledge they once possessed, and which, perhaps, they have in part forgotten; and to keep themselves up to the improvements which have taken place whilst they have been absent. When they come to London, and leave should be given for that purpose, from time to time, this opportunity should be given to them by the authorities; they ought not to be obliged to go about and pay again their education fees, like a parcel of students, if they have not been educated in London.

There is a museum at Chatham of preparations of diseases of foreign climates, many of which are unknown in England, and which, from its situation, is comparatively of little use. These preparations ought to be demonstrated, and the diseases duly taught. The specimens of natural history are many of them unique, whilst others are more splendid than any in the British Museum or elsewhere, but they are comparatively unknown. A government that shall appropriate a piece of ground in Downing street, when the old houses between it and George street are pulled down, for the erection of a museum, with apartments for the conservator, will do themselves great honour. Let them attach to this a professor of physic and another of surgery, and they will render the country an inestimable benefit. The expense need only be the difference between the half and the full pay of these officers, and they may be otherwise employed in the public service. The saving would be that of a great number of lives.

It is thought proper to employ a gentleman of high character in his profession to teach the veterinary surgeons how to cure the horses of the army, and surely something of the same kind should be done for the men.

FIRST CLINICAL LECTURE,

Delivered at the Westminster Hospital, Saturday, May 21, 1836.

BY MR. GUTHRIE.

Three weeks ago you saw me relieve the neck of a poor little girl three years of age, who had been burned, and whose lower lip was adhering to her breast. I removed the cicatrix: her head is kept up by a proper back board and head piece; and she will get well with as little deformity as can be avoided. These cases are not common, but coincidences in surgery are not infrequent; and I have another of a similar kind at the bend of the arm, which prevents its being straightened. This girl is 13 years of age, and, being the daughter of a person who has seen better days, I have put her under the care of the housekeeper of the Ophthalmic Hospital, and all of you who choose may be present at the operation on Monday.

You saw me a few weeks ago cut off the thigh of a child, seven years of age, by the usual circular incisions. Poor Tommy! I tried very hard for weeks to save his leg, and even run it so close that I feared it was too late to save his life. The operation did however succeed; but he had a narrow escape. The child whose thigh I have just removed is 11 years old; the disease, ulceration of the cartilages of the knee joint, which he has had for months, and his mother brought him to me last week for the purpose of having it amputated. I did this by the flap operation on each side, so that you might have an opportunity of seeing the different methods of operating; for instances of this kind occur much too infrequently in our hospitals for the advantage of instruction, although quite frequently enough for the sake of the sufferers.

It is a proof of the advance surgery is continually making, for one operation is not performed now where three were formerly; and in many cases in which they were done commonly thirty years ago, they are not now even thought of. Sir Astley Cooper observed to me the other day, that the last war had given the greatest impulse to surgery it had ever received in this country; and there can be no doubt of the fact. Those who remained at home were obliged to labour and increase their knowledge, that they might be enabled to teach; and those who went abroad were obliged to learn, because they could not help it.

I have been and am the historian, or the recorder, of the Surgery of the Peninsular part of the war; and whatever deficiencies there may be in the record shall be in time completed. You have lately and on this day seen four of the improvements thus made.

1. I did not use a tourniquet, the screwing and unscrewing of which always creates some difficulty and annoyance. I never do when I have good assistants, but you must have recourse to it when alone or when they are ignorant. A very moderate and simple pressure suffices to stop the flow of blood through the largest artery; and gentlemen who would have trembled forty years ago at cutting across the femoral or axillary arteries without an infinity of preparation, would now, if they were alive, cut either without the slightest hesitation. I never use one, to teach you confidence. I learned to do without a tourniquet from necessity, the mother it is said of invention, on the field of Vimiera, and I finally abandoned it at Albuhera (I beg, gentlemen, you will always spell Albuhera, when you have occasion to do so, with an *h*; you might as well write London without a *d*.) It was only, however, at the last battle of Toulouse the surgery of the British army approached perfection. There were even there one or two mistakes. Another campaign in the South of France would have made us perfect.

2. I always divide the skin and fascia by the first circular incision, down to the muscles; they will then retract, with very little assistance, from the point of the knife at particular spots of adherence, instead of the useless and painful dissection of the skin from the fascia, which formerly took place. This practice is, I believe, now universal.

3. You will find in books, that in dividing the muscles, you are to take particular care that you cut the long and unattached ones of a different length from those which are attached to the thigh bone, and each muscle according to its power of retraction; so that they must be cut long and short, and of different lengths something like the parts composing the compensation pendulum of a clock. I have no objection to all this; but I never saw it done, and have long since given up all thoughts of doing it myself; and why? because I have seen scores of amputations done by all sorts of hackers, hewers, and bunglers, and I invariably found that no matter how they were hacked or hewed, whether the muscles were cut according to compensation principles or not, they always made capital stumps, when another rule was observed, viz. to cut the bone, that is to have it well covered by these same muscles and integuments. It is the golden rule of amputation, and the quicker you can do every thing else and come to that, the better for your patient. In the flap amputation, where all the parts are divided as nearly as possible at once, no attention can be paid to compensation cutting, and there is therefore no waste of time. Remember, therefore, always cut your bone short; the stump may by this be one inch shorter than you could otherwise make it; but woe there is to the man to the end of whose bone the cicatrix adheres, he is unhappy for the rest of his life; he will never forget his doctor.

4. Saw your bone perpendicularly, and not slantingly, which prevents its splintering.

I read, gentlemen, most of the anecdotes, histories, and criticisms, which appear on the subject of the Peninsular war, with great

interest ; sometimes I cannot help smiling at the want of accuracy which occurs as to time and place among the critics, and I have been half inclined to correct them, but doctors had better mind their own work, and I shall only now and then give you a personal anecdote of some of my old friends, and after the lapse of so much time I may do it perhaps without the charge of vanity or presumption. You shall now have the first.

The action of Rolica (by the error of a copying clerk in Lord Bathurst's office miswritten *Roleia*, and absurdly continued) was an eventful day for many ; for none more than for George Lake, the lieutenant-colonel commanding the 29th regiment. He fell at the moment of victory, and, as far as I know, no one has thought it right to record his worth. It is true an attempt has been made by Mr. Hamilton, in Cyril Thornton, to portray him as Colonel Grimshaw, and, however estimable he has made him, he was still a greater and a better man. In India he was early distinguished when serving with his father the first Lord Lake, by his cool and determined bravery, his amenity of manners, his calm and gentlemanlike deportment. He joined the 29th regiment immediately before their embarkation, in 1807, under General Spencer, for Ceuta, and soon won the hearts of all. The officers adored, the soldiers revered, and there were few who would not have laid down their lives for him. The evening before the affair at Rolica, there was every reason to believe the regiment would be among the first troops engaged the next morning, and there were two bad subjects under sentence of a court martial for petty plundering. It is to this hour the bane of the British army, that there is great difficulty in getting rid of men, upon whom neither precept, prayers nor punishment have any effect. There were at that time several in the regiment who had received from four to eight thousand lashes ; they were incorrigible on some points, but most gallant soldiers. I think I see one of them now, poor Needham, a grenadier of the finest order of men, a fellow of the kindest heart, an excellent soldier, but he could not resist rum. In America, in Summer or in Winter ; for heat or cold were nothing to him, he would swim the harbour of Halifax on a stormy night, and return to his post with as many bladders of rum tied round his neck as he could get money to buy. Of course every body got drunk, and poor Needham was detected and flogged ; he never disputed the justice of his sentence, but readily admitted that he could not possibly refrain from doing the same thing again. It was of no use flogging him ; nevertheless, I saw him get the last of, I think, 15,000 lashes, without their being of the slightest use to him in the way of reformation. Indeed, I have seen many scores of thousands of lashes given, without being aware of any benefit being derived from them. It is of little consequence whether a man receives 100 or 300 lashes ; my own opinion is, that he should receive neither ; a brand is not affixed to a felon and it should not be to a soldier. Nevertheless the British army must be occasionally flogged : it is mercy to the soldier to do it, and

no discipline could be maintained before the enemy without it. In Great Britain, soldiers should be treated like wayward children, and no man in my humble opinion, should receive more than two dozen lashes, and that on his bum, in the way schoolboys of 16 sometimes get it; and then with their coats turned, they may be made to do their duty the same day, the derision of all the children in the town. An old culprit cares nothing whether he gets one hundred or five hundred lashes. I remember one of these gentlemen (Mr. Dennis Reardon by name), who, for some misdemeanor, was sentenced to receive 500 lashes. This the general commanding was pleased to commute for fourteen day's garrison black strap; that is, to work, (or rather idle) fourteen days at the King's works, without 7d. a day; but Mr. Dennis declined the favour and took the 500 lashes. Poor Needham died in the element he had so often braved with impunity. He was carried off the forecastle of a transport by a heavy sea in the Bay of Biscay, and was long seen buffeting the waves in vain, and without the hope or prospect of relief. He was the *beau ideal* of a grenadier.

Colonel Lake when he formed his regiment in the evening for the punishment of the two culprits, knew full well that every man was satisfied they deserved it, but he did not say that. He spoke to the hearts of his soldiers; he told them he flogged these men not alone because they deserved it, but that he might deprive them of the honour of going into action with their comrades in the morning, and that he might not prevent the guard who was stationed over them from participating in it. The regiment was in much too high state of discipline to admit of a word being said, but they were repeated all the evening from mouth to mouth; and the poor fellows who were flogged declared to me they would willingly, on their knees at his feet if they dared, have begged as the greatest favour he could bestow to be allowed to run the risk of being shot first, with the certainty of being flogged afterwards if they escaped.

Early the next day we came up with the French, drawn up in line, with the village of Colombeira on the rear of their left, the heights of Rolica, Columbeira or Zambugeira, as they are indifferently called, behind, and covering the main road which turned the right of their position. They were the two battalions of the French 70th regiment, and the 29th and 82d advanced in line to meet them. A line of two deep, either for attack or defence is peculiar to the British; all other nations attack in column, but British disciplined troops can do what none others can do, and no day of ordinary parade could appear more beautiful than this. We advanced in this manner in perfect order and in ordinary time with shouldered arms, until the red tufts, nay, the very faces of the French line could be distinguished. Lake and his horse seemed both to be prancing with delight.

I was told my place, on such occasions, was seven paces in the rear of the colours (we then knew no better), and he seemed to be about as much in front. At this moment he turned round, calling

out, "Gentlemen display the colours." The colours flew, the horse and he had another prance, when he turned again and addressed the line ;—"Soldiers I shall remain in front of you, and remember that the bayonet is the only weapon for a British soldier." The French at this instant retired, and the right of the 29th meeting the road, broke into sections and followed through the village of Colombeira. One field separates the last houses of the village from the foot of the heights which rise almost perpendicularly above it. The Light Company under Captain now Colonel Creagh, was ordered to the front, when some of the old Grenadiers called out, we can do it as well as them, Colonel. His smile was beautiful in replying—Never mind, my lads, let the Light Bobs lather them first, we will shave them afterwards. A narrow steep ravine seemed the only possible accessible part, and up this, Lake, without further hesitation, led his grenadiers on horseback. The whole regiment followed, with unexampled devotion and heroism, and gained the summit, but not without the loss of 300 men in the desperate conflict, which took place almost hand to hand, in the olive grove half way up the hill. Broken and overpowered by numbers, Lake fell, and his soldiers would have been driven down, if the 9th regiment had not rushed up with equal ardour, led by a no less gallant soldier, Colonel Stewart. The two regiments formed on the crown of the hill, supported on their right by the 5th, which had been less opposed, and the French retired, finding that their right was by this time turned. Colonel Lake, on horseback, on the top of the hill, seemed to have a charmed life. One French officer of the name of Bellegarde, said afterwards, that he had fired seven shots at him. Once he seemed to stagger as if hit, but it was only at the seventh shot he fell. It is probable he was right, for he was wounded in the back of the neck slightly ; but the ball which killed him passed quite through from side to side, beneath the arms ; I think he must have fallen dead. Will you permit me to record the end of as brave although an humbler soldier ? The sergeant-major Richards, seeing his Colonel fall, stood over him, like another Ajax, until he himself fell wounded in thirteen places by shot and bayonet. I gave him some water in his dying moments, and his last words were, "I should have died happy had our gallant colonel been spared ;" words that were reiterated by almost every wounded man.

Colonel Stewart, who led the 9th, fell also, He was struck by a musket ball in the belly, which lodged ; I saw him a short time afterwards lying under a myrtle bush, and he beckoned me to come to him. "Our friend Brown," meaning the surgeon of the 9th, "gives me no hope, pray look at me." I did so, and he saw I had none to give either. He thanked me, and begged he might not detain me from others to whom he could give relief. He died, poor fellow ! a few hours after, with the resignation of a christian, and the firmness of a soldier.

I have been led to be thus garrulous, from having obtained, only

the day before yesterday, the letter addressed by the Duke of Wellington, then Sir A. Wellesley, to Sir Richard Borough, who had married Colonel Lake's sister. It is the letter of a soldier announcing and regretting the loss of another, for whom he had a firm and affectionate regard. I cannot resist reading it to you. It is published in the despatches of the Duke, edited by Col. Gurwood.

Lieutenant-General the Hon. Sir A. Wellesley, K. B., to R. Borough, Esq.

"Lourinha, 18th August, 1808.

"My dear Borough,

"I do not recollect the occasion upon which I have written with more pain to myself, than I do at present to communicate to you the death of your gallant brother-in-law. He fell in the attack of a pass in the mountains, at the head of his regiment, the admiration of the whole army; and there is nothing to be regretted in his death, excepting the untimely moment at which it has afflicted his family, and has deprived the public of the services of an officer who would have been an ornament to his profession, and an honour to his country.

"It may at the moment increase the regret of those who lose a near and dear relation, to learn that he deserved and enjoyed the respect and affections of the world at large, and particularly of the profession to which he belonged; but I am convinced, that however acute may be the sensations, which it may at first occasion, it must in the end be satisfactory to the family of such a man as Colonel Lake, to know that he was respected and loved by the whole army, and that he fell alas! with many others, in the achievement of one of the most heroic actions that have been performed by the British army. I cannot desire to be remembered to Mrs. Borough, but I beg you to believe me, &c.

"ARTHUR WELLESLEY."

"To R. Borough, Esq."

I know no man of those who are no more, who can be compared with Lake, except Sir E. Pakenham. I have always a pleasure in bringing them to my recollection. I can fancy them as I last saw them before me: alike noble and generous in their natures, as incapable of fear as of doing a bad action. They were never so happy as in doing a good one: equally devoted to the fair sex, they were in all situations when they called upon them, their willing guardians and protectors: they were the bayards of the British army. Sir E. Pakenham was never so animated as before the enemy; the sound of a shot seemed to give him the greatest delight; he snorted at it like a racer on the course; and, like Lake, he was always the first in danger, and the last out of it. Careless of themselves, considerate for others, wounded on several occasions, they seemed to forget that such a thing could again occur. His regard for the

Duke of Wellington was unbounded. When the British army retired before Marshal Marmont, from Fuent Guinaldo, and maintained its ground on the heights near the convent of Sacca Parte, in front of Sabugal, he thought the duke, he told me, was needlessly exposing himself, and prevailed upon him to fall back a little. He had scarcely done so when one cannon shot killed Captain Houghton of the 23d Fusiliers close to him, and another struck the ground at his feet. The duke merely turned and said, "Pakenham, this is what you call taking care of yourself. In his illness at Madrid, his anxiety for the duke and the army at Burgos prevented his recovery. I was the chief of my own branch of that army, amounting to more than 30,000 men, under my Lord Hill; and for ourselves we had no apprehension. We could have beaten Marshal Soult any day in four hours, who had about our own numbers, but we flattered ourselves of inferior troops; there was, however, no advantage to be gained by beating him at Madrid, if our communication was cut off at Salamanca. He only began to recover his health in the retreat, when there was nothing to think of but fighting.

At a later period, in the fierce conflicts in the front of Vittoria, he lost a friend, an officer of his old regiment the Fusiliers, Lieut. Col. Despard, who was killed by a ball which lodged in his back bone. His widow arrived some time afterwards at St. Ander, with four children, from Lisbon, alike wanting in friends, and in a foreign country, of means. Sir E. Pakenham sent me a hundred pounds for her use, desiring me to say it came from a fund in the regiment, to which she was entitled without any sort of favour, on account of her children. Spare, he said, at all hazards, her feelings; they will be greatly hurt if it is offered as a present from me, and will be refused; and be assured you will not be telling an untruth, for I consider every farthing I have to spare as a fund entirely at the service of every widow and orphan of that regiment. She does not to this hour know that the money came from Sir E. Pakenham. One of these four children was his godson. He has been now near fifteen years a lieutenant, and returned two years from the West Indies, his health ruined, his constitution almost destroyed. He has no prospect but a return there in autumn, unless the paternal kindness of the commander-in-chief shall relieve him from a fate differing from his father's only in being more untimely and inglorious.¹ England, magnificent in her wealth, splendid in her extravagancies, deals only with her brave defenders with a niggard hand; to all others she is just, if she cannot always be generous.

I parted with Sir E. Pakenham at Lord Dartmouth's door, at the corner of St. James's Square, the day he started for his last command. On shaking hands, I said, "We now part for the last time; I shall never see you again." He asked, "Why say so; what

¹ Lord Hill has since given to this officer the situation of Adjutant to a district.

makes you a prophet of evil?" I replied, "I know you so well, that I feel confident you will not be able to hear the first shots fired without being in the affray; and you will be killed, I fear, foolishly." He knew the object I had in saying this, the feeling that dictated it, and, in pressing my hand more warmly, he said, "That I shall fall, is possible; but if I do, *you* even shall say I fell as a general commanding in chief, ought to do." When his aide-de-camp, Colonel Wyly, returned to England, he dined with me alone that we might talk over the last acts of the life of our departed friend. In the front of a regiment which appeared to be failing in its duty, on horseback, with his hat off, he received his first wound. Feeling that he could not sit on his horse, he endeavoured to dismount. In the act of lifting his right leg over the saddle, a second shot struck him a little above the groin, and it was afterwards found, had divided the great iliac artery. He fell dead, and he kept his word.

We will, gentlemen, at some future day, continue our observations on the advance of surgery in the war of the Peninsula.

SECOND CLINICAL LECTURE,

ON A PECULIAR AND UNDESCRIBED INJURY OF THE SHOULDER,

Delivered December 2, 1837.

I have promised for the last two months to describe to you the nature of the accident, as far as circumstances would permit; but have not been able to obtain the attendance of the individual to whom it happened until this day, and it is of little use describing these things unless you can at the time test the value of the description.

J. Cadman, who is now seated before you, is a plasterer by trade, and when commencing his daily work felt the ladder turn on which he stood, and after some effort to save himself, he fell with it, his left elbow striking the ground, whilst his shoulder rested against one of the steps of the ladder, in a way he cannot distinctly explain. He felt he had sustained a severe injury in the shoulder, and the elbow was much grazed. He was brought immediately to the hospital; but there was so much swelling that the house-surgeon, Mr. Dasent, could not make out the nature of the injury, and sent to me. I saw him about three hours after the accident; and the most remarkable and striking appearance was a fold or pucker of the skin, the size of the half of half-a-crown, situated over the middle of the pectoral muscle, where it forms the anterior fold of the arm-pit. A hard substance could be felt below this, and extending above it towards the coracoid process, which could not be distinguished on account of the swelling, and it had been supposed that this hard substance was the coracoid process broken off. The head of the humerus could be very distinctly felt on the outer part of the glenoid cavity, or something like it. The arm was very moveable in every direction, and the elbow could be brought close to the side, and made to strike the ribs without difficulty. I decided that it was a fracture, and not a dislocation; but the nature of the fracture I did not understand, and hoped it would become apparent when the swelling had gone down. The fore-arm was bent, the arm brought close to the side on a splint, and leeches and cold lotions were applied and repeated until the swelling very slowly subsided. I was now satisfied that the humerus had been broken at its anatomical neck, and forced through the pectoral muscle, the fascia covering which and the skin had offered sufficient resistance to prevent its passing through them, and forming a compound fracture; causing the bone, however, to pass upwards, and puckering the skin by carrying it along with it. The arm was shorter, and the retraction of the pectoralis major, and probably of the subscapu-

laris, had drawn the bone more into the situation the head of the humerus usually occupies when dislocated under the pectoral muscle. The shape of the broken end of the bone was satisfactory as to its being a broken bone; but I was not at all pleased with its situation, and as no common ordinary extension moved it downwards, I caused him to be largely bled, and gave him tartar emetic at different doses to 12 grains during an hour and a quarter, that I placed him under a gentle but gradually increasing extension in the pullies. I found I could bring the bone down to its natural situation as to length, but I could not make it remain in its proper place. There was, therefore, nothing to be done but to allow nature to work for herself; and she has certainly worked wonders, for at this moment Cadman suffers from one inconvenience only, and that is that he cannot touch the ceiling with the hand of the injured side, at the same distance that he can with the other; he is obliged to be five or six inches nearer to it, from the arm making a greater angle with the head, than on the sound side. In all other respects, he can do his work just as well as before. When he sits on a chair, as he now does, with the fore-arm bent resting on the thigh, the hand supine, the prominence of the broken bone is very remarkable, and on placing a dry bone by the side of it, it appears to correspond to the small tubercle on the inside, and to a part of the great tubercle or tuberosity on the outside. The hollow between seems to be that for the passage of the long head of the biceps; but whether this tendon runs in it I cannot ascertain. The tendon of the subscapularis appears to be attached to the inner and back part of the small tuberosity, and to have drawn it inwards, whilst that of the pectoralis major, which is well defined, has drawn it inwards and forwards. The portion of the head of the bone, or the whole perhaps of the cartilaginous surface, remains attached in situ with a part of the great tuberosity; but how far, or how much of the three muscles inserted into this process remain with it and the head, I cannot ascertain. I should think but little of the teres minor. The arm moves with perfect ease in every direction; when it is rotated outwards and backwards, the broken end of the humerus seems as if it were going to come through the skin, it is so prominent, and when the arm is raised as high as it can be done, the prominence of bone is seen above the shoulder, as it then rides as high as the clavicle. I have offered him £50, which he may leave by will, for the dissection of his arm, if he dies before me; or my son will give it to his heirs, if he survives me, as I should like the accident to be fully understood. I have mentioned it to my colleagues of the Court of Examiners, but it is not known to any of them. Sir A. Cooper has sent me the 21st plate of the last edition of his work on fractures and dislocations; but this only shows a fracture of the anatomical neck, with little separation, and that outwardly. Mr. White thinks he has seen a case somewhat like it, from there having been the same sort of pucker in the skin in front; and Mr. Cusack, of Dublin, thinks he has met with one of the same kind, from having also seen

the same pucker. Both these cases did well, but with unseemly shoulders. I am of opinion that the elbow came first to the ground, but that the step of the ladder struck almost simultaneously against the head, or rather across the neck of the bone, and that the effect of the first blow, which would have caused a dislocation, was thus modified, and gave rise to a fracture. It is not, after all, of any consequence to know how the thing happened; but it is of importance to know that if nothing is done, nature will right herself so as to recover the use of the arm. Surgery is not, however, satisfied with this; and my object in a future case of the kind, now that I think I understand it, would be to prevent the deformity, which in a woman's arm would be considerable, although much less than I expected; for the pucker has disappeared, and the humerus under use has resumed so much of its natural direction, that I should never have thought of extension by the pullies if it had always been the same. The pointed ends of the fracture will yet round off, and form a small round extremity of bone, and a kind of false joint with the parts around. There is I presume some ligamentous union with the head of the humerus.

In a case of this kind, I should make extension until the bone resumed its proper place; but this must be done very carefully, for I am not sure it could be done effectively without tearing the skin of the pucker or fold I have described, certainly not without great risk of doing it, and which would render the accident a very dangerous one. If the bone could be brought into its proper place (of which, from this and other causes, I have some doubt), it is probable it would not be easily retained by padding the axilla, and other means which will at the time suggest themselves to you; and if it were, it is possible that bony union in such a situation might be more detrimental to the free use of the arm than the mode of cure which nature has adopted. I am inclined to believe that the capsular ligament of the joint was not torn, or extensively so; but this must be matter of conjecture.

Having thus drawn your attention to this case, I shall hope it will soon be thoroughly understood; and in order that no misunderstanding may take place on the subject, I shall write, and leave the observations I wish you to remember with the house-surgeon, and all that please may take a copy of them; and I shall adopt this course in future with any thing I may say which I think it useful for you to recollect, or to be able to refer to.

The poor blind deaf man, with half-a-dozen shot holes in his body, I now place before you, was once a gay and gallant soldier; he received these wounds on the heights of Rolicca, on the 17th August 1808; and I bring him forward as an instance of the British surgery of the day, in contradistinction to what often followed, and as a proof of that which ought to form our rule of practice for the

future in the enquiries, I am this day going to notice, viz. those of the arm from musket-shot.

When I revised and completed my work on gun-shot wounds in the winter of 1814, I had the support of all the junior medical officers of the Peninsular army, the approbation of all the seniors under whom I had served, except the Army Medical Board (I was too young for them), and the esteem and recommendation of most of my equals. I did not like to say I had seen more than many of them; I had no desire to say so: I was more willing and more happy to divide any credit which might be awarded with my brethren, and to take the responsibility of defending what was objected to on myself, than to withdraw from the strictures, and many of them were sharp ones, which were made on the surgery of the campaign of Waterloo, by saying that it was not the same with the surgery of the Peninsula. You will naturally ask me why it was not? and the answer is a very simple one: that they were not the same people, or when they were the same, the ablest had marched with the army to Paris, or were solely engaged with the wounded officers. The hospitals were principally in charge of others who had served but little on the field of battle, and it was the wounded under their care that were open to remark. One instance will suffice to explain my meaning. After the last battle in the Peninsula, no one on the third day could have found a gun-shot fracture of the thigh in the bent position on the side; after the battle of Waterloo no person could have found one in any other. Here is what was a thigh-bone at the battle of Albuhera; the man died at Elvas, and it looks something like a ram's horn. He lay on his back, and the thigh on its side. And when this is the case, the thigh is always crooked, and the man generally dies. Twenty-two years have passed away since the battle of Waterloo; I have no surgical contemporaries of my own standing in London, and I may now tell you the truth without the fear of giving offence, or of appearing egotistical. You will again ask me perhaps how it was possible that in one short year an error of this kind could have been committed? and why many surgeons preferred serving at hospital stations to the field of battle? and I will have the pleasure of telling you for the benefit of those who may be aspirants for military medical honours.

The first appointment a young man receives at 22 years of age, is, that of an hospital assistant, in which situation on service he is worse treated than any costermonger's donkey in Westminster or Shoreditch; for the donkey is occasionally fed, cleaned, and lodged; but the doctor, if he wishes any of these conveniences of life, must find them for himself wherever he can catch them, and that is not always so easy for a man to do, who has no money in his pockets.

Suppose him, if you please, at Portsmouth, waiting for a fair wind, and spending at the Crown or the Blue Posts the last pound which remains of his two months' pay in advance, which have been very improvidently given him; or land him, if you please, at Lisbon or at St. Andero, with five pounds in his purse, a foretaste of his

prudence. He presents himself to the inspector of hospitals, who very politely informs him that he must march to join the army in three days, and advises him to buy a mule to carry him and his luggage, and to hire a servant, for whom five shillings a week will be paid at a future time. He then furnishes him with an order on the quarter-master-general's office for a route and on the commissary for his rations.

The quarter-master-general very gravely gives him a route, and the commissary-general very agreeably provides him, on his receipt, with as much meat, bread, and wine, as ought to last him three days on the road, and adds very graciously so much wood to cook the meat; but which it may be supposed the young doctor very obligingly leaves behind him for the next gentleman in a similar situation, and who may be equally unable to carry it. Having no money to buy a mule or a jackass, he sends his trunks to the stores, where they are soon very cleverly plundered of every thing valuable, and starts with a small sack on his back, containing a clean shirt, and a new pair of shoes. If he should have a little money in his pocket, he ventures to hire some lad who offers himself at the corner of the street, or who is recommended by some person about the house where he lodges, and who, in all probability, very civilly and quietly walks off on the night of the second or third day's march, with the sack and every thing else he can lay his hands upon. If my friend has had the good fortune to attract the attention of the inspector, he will perhaps direct that he be attached to a party of bullock cars or mules going up to the army with stores, and if this should happen, he will have a chance of saving his baggage and of getting something to eat, but bullock cars travel only two miles an hour on level ground, one on a bad road, and oftentimes wait for an hour to take breath, so that having ten or twelve miles to travel, he is out for twelve or fourteen hours under a burning sun, or in a heavy rain. If he escapes after ten or twenty days of this work, it is only on his arrival at his station to set off back again on a similar travel, or to take charge of a large number of sick, and share the dangers of a crowded hospital. The cemetery called English at Ciudad Rodrigo, contains all that remains of twenty or thirty-one of these gentlemen, the victims of distress and disease. I remember one of these young men at Puebla de la Calçada, a village on the plain of the Guadiana, not far from Merida, who had just come up from Lisbon; the village was full of troops, and as the rank of a hospital mate is the lowest of commissioned officers, his lodgings were none of the best; his bed being on the ground-floor, at an equal distance between the peasant and his wife, and an old sow and a dozen of pigs that had grown up to the size of young porkers able to provide for themselves. From these he was separated by a partition having a door-way, opposite the street entrance, the lower third of which was blocked up by a board, in order to prevent the pigs walking into the room at pleasure. The doctor finding his position in the night rather hot, being in the month of September, shifted his palliass between

the doors for the benefit of the air, which came in under the street door. The peasant, who rose at the dawn of day, woke him, and having opened the front door, made signs to him to rise. The doctor was indignant at being thus disturbed out of a sound sleep, and signified that he would not get up. The peasant in his turn was more vociferous and urgent with tongue and signs that he should shift his position; he looked, as the doctor afterwards said, like a talking sign-post. The matter was however soon adjusted, a horn was heard to sound, the peasant tore his hair in despair, out jumped the lady pig right on the back of the sleeper, and then sprang out of the door, followed by all her family, to join the swine-herd who was thus collecting them according to ancient custom, at the end of the village, for their day's pasture in the adjoining fields and on the bank of the river. The roaring of the doctor, and the cries of the peasant's wife, brought in some of the neighbours and soldiers who were also up, and the poor doctor, on being raised, was found to have suffered from only a few bruises. He was however a doomed man; he was only about five feet four high, rather good-looking, but like many other people, had remarkably short thighs and legs. In the evening at sun-set, and the evenings in autumn in Estremadura after a sultry day are delicious, he thought he would stand at the door, and catch the soft but cool breeze that is always felt at that hour. He was thinking of home, and what could have induced him to leave it, for it was just the hour at which he used to steal from the shop where he was apprenticed in Old Gravel Lane, and take a quiet walk down to the bank of the Thames, to enjoy the evening breeze, and study the muscles on the naked men, who appeared like so many demons emptying coals out of the colliers into the coal-barges. His eyes rested on the fine blue sky, so common in Spain, and so rarely seen in this climate, and he almost thought he yet could be happy for a few months in it. At this moment again he heard the sound of the swine-herd horn; it reminded him of the irruption of the morning, and having most emphatically, with a long-drawn sigh, damned those pigs, he continued to meditate and to admire until his attention was drawn to sublunary things by a noise which was, alas! too late. On looking down he saw the old lady pig, followed by all her family, coming right at him, full tilt, accompanied by all the neighbouring pigs who lived beyond him. In an instant she was between his legs. Only conceive my little doctor, with an old sow near six feet long by two feet wide, in such a position, his fate was as inevitable as your's would be in a similar situation;—over he went, bumped his nose against her tail, and rolled covered with blood under the rest of the family, who bolted over him into the sty. He was not aware, poor fellow, that the swine-herd dismissed his flock by sound of horn as well as collected them, and every pig knows that his master or mistress had prepared for him a trough well filled with peas, of which the first comer had the best share. The pigs, on their arrival at the end of the village, awaited most

patiently the swine-herd's will ; but the moment the first sound of the horn was drawn, every pig took to his heels, and woe to any one who stood in their way. The proximity of their dormitories to their masters and mistresses rendered them perfectly acquainted ; and on their way home, if they met their mistresses, who generally attend to their food, they would jump upon them like so many puppy-dogs. When they got home, if the door was not open, the first arrival jumped up and pulled the string of the latch, and let himself and the rest in ; there being no locks nor keys in that primitive country.

Circumstances and accidents, such as I have related, rendered it very difficult however to procure good qualified surgeons for the army, and a curious expedient was resorted to in consequence. Political economists say, that when the demand for tea, coffee, sugar, cotton, &c. &c. is greater than the supply, the price will increase, and that human labour ought to be regulated by the same rule ; the authorities in England thought however otherwise, and instead of increasing the price, or smoothing away the difficulties, they deteriorated the article, and as surgeons could not be found qualified to kill or cure by commission, they thought it right to take those of an inferior description, and give them only a warrant, as they do to boatswains and gunners on board ship. I do not know whether this bright idea originated with the government or the army medical board ; but when elicited, it seemed to please all parties, and a certain number of gentleman thus warranted to do business came out to Spain. I had some of them at San Andero, where I was for a couple of months. One poor fellow having called to report his arrival, I desired him to sign a paper descriptive of his qualifications. This I found he could scarcely do, the letters very much resembling pot-hooks ; which he attributed to sea-sickness, in which I sympathised with him, my own stomach being easily unshipped by a very moderate view of blue salt water. I therefore sent him to live at one of the fever hospitals, to do duty for a few days, until I might see what he was made of. Two days after going to this hospital at six in the morning, I found him in a little alarm. A soldier had been brought to him, he being the officer on duty for the night, riotously drunk ; and in order to keep him quiet, he had him tied hand and foot to the four corners of the first bedstead he could meet with and having thus got the man on his back, recollected he was warranted to do something in physic, he therefore gave him a good dose of tartar-emetic, believing his stomach ought to be emptied ; but never thinking, or not knowing that a man could not advantageously vomit on his back, he was found suffocated two or three hours afterwards. I met my friend some three months after this in charge of 40 men and officers at Renteria, going to Passages ill with fever, of which disease he knew nothing ; he assured me he had been more fortunate than when with me. He had been sent in charge of sick to several places ; on the present occasion he had lost but two ; on a former, at Pampeluna

three, at Vittoria five; that he hoped to do better in time, and I have little doubt, that if his exploits had been as duly recorded as those of Don Giovanni, he might also have boasted by the end of the campaign of "*trescientos in hespanha*."

Perhaps, gentlemen, you may think those doctors who were higher in rank fared better. I will give you an example in a bit of my own history. Having nearly lost my life through fever, I was sent to England, and returned just at the time Marshal Massena broke up from before the lines and retreated. I bought a horse and a mule, hired a servant on the doubtful recommendation of being as good as any one I could get, and set off to follow the army to Coimbra. On the fourth day at Rio Myor, the fellow finding I kept too sharp a watch to permit him to rob me of all I had, ran away with one of my two blankets and my dinner. I was now in a happy state, with a horse and a mule to clean, and nothing to eat. An assistant surgeon, who happened to be travelling the same road, and had joined me the same day, which in all probability, prevented my losing my horse and mule, had a soldier servant and his mule in the same stable with mine, and he kindly allowed him to see that they were not stolen. The country was desolate; dead horses, asses, and men lay about in all directions, and there was little to be obtained of any kind. My assistant surgeon, whose name I very ungratefully forget, also presented me with a blanket he said he could spare. It was almost as fatal a gift as the shirt of Nessus. From that time I ceased to sleep, my flesh seemed to be creeping and crawling all night, I became spotted all over, and wondered what could be the matter with me. On arriving at Coimbra, I was sent to the house of a padre, the clergyman of the parish; like most of the padres in these countries, he came of a large family. at least in the female line, and had a very respectable number of nieces, one of whom was so good as to keep house for him. She was rather good looking, and about five and thirty years of age, which in Portugal constitutes a rather elderly lady. I spoke Portuguese tolerably well, and was very civil to boot, and they were both pleased to delight in me. I could tell them the news, and could understand their complaints against the French; and they gave me in return an excellent dinner and a very good bed, in which I slept soundly for the first time for four or five days. On mentioning this in the morning to my kind hostess, she assured me by a very significant motion of the thumbs, that she knew the cause of evil, and begged to have my little stock of bedding delivered over to her. On coming home from a morning perambulation of the town, she met me in an ecstasy of delight, assured me she had my blankets hanging in the sun all day, and that those fleas which had not hopped out, her servant had duly destroyed. She further assured me they were as long each as her nail. Now as ladies' nails are as long in Portugal as they are in England, and sometimes longer, I demurred at this, and she insisted on my assisting her to find one, but there was not one to be discovered by our united

researches; so I cannot vouch for their length; but from the appearance of a dead one afterwards produced, I think they may have been half as long.

In due time I crossed the country, narrowly escaped being drowned in the Guadiana at Jurumenha, and joined the fourth division of infantry near Olivença. I arrived just after sunset, on the flank of the troops, without knowing more than one individual of the whole. The general commanding was a mile off, at a house I had no chance of finding; and, by one of the odd arrangements of the service, the medical staff-officer is the only one to whom custom gives no claim on his hospitality, the other staff-officers all living with him. It rained in torrents, with little hope of its termination; there was nothing to be done but to dismount, place one's back against a tree to which the horses were tied, and await patiently, dinnerless, the approach of another day. I can assure you I have passed pleasanter evenings. Your progenitors, who snored all night by the sides of your mothers or grandmothers, and growled all the mornings the tax-gatherer paid them a visit, had no idea of the comforts we often enjoyed; and no one who had seen my condition in the morning would have pointed me out as the man who, in a short few days, was in the field of battle of Albuhera, to be the arbiter of the lives and limbs of hundreds of his fellow-creatures. The history of that fight has not yet been correctly given: those who know, do not tell the whole truth; and those who do not know, cannot tell it. I found myself the chief of my own arm on that memorable day, the hardest fought action of the whole war, simply because I was the senior and the junior of my rank. The surgical history of this battle I will some day tell you, and if no one else will, the military history also; suffice it to say, it satisfied me that an injury from the wind of a cannon-ball was nonsense. In the middle of the contest I dismounted, and had just placed my bridle in the hand of the orderly who led the king's mule, when a cannon-shot passed between his head and mine. I could not help asking him if his head was on, nor of laughing outright, when, with the most soldierlike gravity, he wheeled to the front facing me, touched his cap, and hoped also my head was safe. At the battle of Salamanca, the fourth division, commanded by Sir Lowry Cole, found itself, as usual, under the heaviest fire of the enemy. The troops were ordered to lie down under the fire of twelve heavy guns, to which we had only six light ones to reply, and I halted a little in the rear to make my arrangements. As it was plain we were in for a good pelting, the general sent his aid-de-camp, Captain Roverea, to ascertain where I had fixed the field hospital, that the wounded might be directed upon it. I was at this moment going to the front, and saw my friend Roverea approaching, when my horse stopped and ducked, a sort of gambol I did not think he was warranted to make from the quantity of corn he had eaten. This motion was explained in a moment; a twelve-pound shot, which he had seen, but which I had not, plunged into the loose ploughed field a few

feet before him, covered us both with dirt, and hopped calmly, but irresistibly, over my shoulder. Roverea was so white in the face that I thought he must be wounded; he said no he was not, and eagerly enquired if I had seen that shot pass. I said I had, and nearly felt it too. "Well," said he, "it nearly took my nose off." It was impossible to resist laughing at this, for my poor friend, although a most excellent, honourable, and upright man, was certainly not handsome; he was short, with a large face, having high cheek-bones, and as small a proportion of nose as was ever allotted to man, so that in profile but very little of it was to be seen. I could not for the life of me help saying, "My dear Roverea, it might have taken off your head, but I will be hanged if it could have taken off your nose." Not all the sal-volatile in the army could have brought the blood more quickly into his face, for he was very tenacious on this point, having been caricatured in England, and he very indignantly replied, "Sir, you are the only man that would have dared to make such a remark." He had been shot in the head at Albuhera; his skull had been fractured, and when delirious, he had thrown himself out of bed, and thought he owed his life to my kindness. He was, therefore, soon pacified, and willingly forgave my joke. He fell honourably, and for his rank gloriously, shot through the same side of the head on the heights in front of Pampeluna.

After the battle I found myself without conveyance, without stores except those that the panniers of the regimental surgeons contained, and encumbered with near 3000 wounded in the village of Valverde. The doctors all worked as no men ever worked before, the toil was incessant, we thought ourselves happy in the improvement of many around us, and that our reward would follow in the approbation of the higher authorities; when lo! to our astonishment comes a letter from the adjutant-general, through the deputy-inspector of Hospitals, at Elvas, informing him that he had been made acquainted by an officer deserving credit, of the neglect, &c., with which the wounded had been treated; of his great disapprobation, &c. You may conceive our anger, but this is not the way to meet an attack of this sort; when a man errs on the wrong side of truth, the only way to settle the matter is to convict him. I therefore read the letter to the commandant, the late Sir Aretas Young, and to all the wounded officers, and then desired them to tell the adjutant-general the truth; this I forwarded with a request that the person who was now shown to be a villifier might be brought to justice; but no, the adjutant-general was pleased to express in reply, his happiness at finding he had been mistaken as to the wounded at Valverde, but thought the word villifier was too strong. I entreated the deputy-inspector to go and insist upon an apology from the officer, or a reprimand for him from the adjutant-general, but it was of no use, the deputy was a worthy man, but who would as soon have faced the devil as an adjutant-general, and he gravely wrote me word back, we had got remark-

ably well out of the scrape, and to be quiet. I was not at all contented, but I could not move him. He is long since dead, and I believe with the most profound dread of both these potentates. Well, gentlemen, the matter ended thus : the English papers were full of our valour ; our courage, and our difficulties were the theme of every tongue, the humanity men were even satisfied : the general and staff-officers obtained stars or ribbons, the officers commanding regiments, whether in or out of action received medals, many of them were promoted, the regiments inscribed Albuhera on their colours in letters of gold ; some few persons of inferior note who had disappeared and been reported dead, returned to life ; the poor doctors alone got nothing. Do you wonder now, gentlemen, that a staff surgeon even, might prefer a comfortable bed and a good dinner at Santarem or Abrantes, at Portalegre or at Elvas, to the field of Albuhera or the trenches of Badajos. I for one however got something. I carried away with me a little reputation, owing more to circumstances than to any merit of my own, which with a little more gained in different ways, has enabled me, careless of the past, thus freely and laughingly to address you, for

Ridentem dicere verum

Quid vetat ?

“ *Mais revenons à nos moutons,*” an idiomatic expression often used in France, which signifies when duly translated into English, stick to your proper business.

THIRD CLINICAL LECTURE,

ON COMPOUND AND GUN-SHOT FRACTURES OF THE ARM.

Delivered December 30, 1837.

The man I now place before you is one of the heroes of Irun, at which place he received a musket-ball, which broke the right arm nearly midway between the shoulder and the elbow. It does great credit to the medical officers engaged on that service, and particularly to our friend Alcock, (who was educated at this hospital,) and proves what a man can do who is attentive to his studies and his duties. The arm is a little bent outwards, which has arisen from that army not having been supplied with proper splints; and it is not sound, from there being still some dead bone to come away. I feel it readily with the probe for the space of three inches or more. You shall see me remove this.

It is done, gentlemen, more quickly than I can relate it. I made an incision, four inches long, in the line of the ulceration, down to the bone on the inner edge of the insertion of the deltoid, and downwards on the outer edge of the biceps. By this cut I gained but an incision,—a fact you must never forget, as it shows the difference between parts in their natural and diseased state. In order to expose the bone, the thickened, hardened parts, almost resembling cartilage, were separated from it with the knife and finger, which being done, I easily removed two pieces of dead bone, worm-eaten in appearance, indicating the action of the absorbents on them. There does not seem to be any more, and we must therefore hope he will soon get quite well, and save an arm, and have it equal to useful labour, which would have probably been cut off by many surgeons thirty years ago. Let us enquire into these cases more fully.

A compound fracture is, as you all know, a broken bone which protrudes, or has protruded, through the skin, causing thereby a rent in the integuments, which, when the broken bone is brought back to its proper place, may perhaps unite, if the cut edges are placed in apposition. If it should do so, the compound fracture becomes a simple one, and the cure is effected by a very easy, natural process. If it should not unite, the wound remains open, and the process of cure is much more complicated. A gun-shot fracture must always be a compound fracture, because the shot-hole cannot unite or heal by the adhesive inflammatory process: but a compound fracture, caused by a heavy cart-wheel going over the part, must be a more dangerous injury than any musket-ball fracture. The treatment, therefore, in all serious cases, is pretty much the same.

In a gun-shot fracture, the bone or bones may be more or less broken, the splinters larger or smaller, or of a greater or less extent. Let us now, however, confine ourselves to the upper arm, and suppose that the ball has done the least possible mischief; it has gone through, or remains, having merely broken the bone transversely. In the first place, examine the wound at the moment, if you can, and in the gentlest manner. The weight of the fore-arm usually keeps the lower end of the bone tolerably well in its place, and you ascertain the evil by gently feeling the part all round. Your finger should then be passed into the shot-hole, and if it will not go in, the opening must be enlarged, so as to enable it to enter freely. The object is to ascertain the state of the fracture, and to remove the splinters, and the extent of the incision must depend on them. This is the true principle of what has been called dilatation in wounds; for to cut a man because he has been shot is absurd; he should only be cut for some good and specific reason. If, for instance, the ball has merely struck the bone, and has passed out, causing a transverse fracture only, there is no necessity for dilating such a wound at the moment, although it must be done at a later period; it is time enough to do it when necessary, and it is better done then; for if done at first, the cut would have closed up before any bone would be ready to come away. This is one of the differences between a compound fracture, from a slight accident, and a gun-shot fracture. In the accidental fracture, the force being often applied to the ends of the bone, no injury is done to the broken part by direct collision. It is always done in the simplest gun-shot fracture: the ball grazes and injures the bone, depriving it of a part of its periosteum, and a scale or portion will be separated at that place; but this is a process requiring time, and it is to allow of the free passage of this exfoliated bone that an incision must be made when necessary. If the ball lodges in the soft parts after breaking the bone, an incision or incisions are required for its removal; and an incision must also be made if you should fear the lodgment of matter, a free vent for which is always of the greatest importance. Receive it as a general rule, that whatever may require to be done the first few days, had better be done on the first than on the second, for after inflammation has commenced, any handling or examination, however gently made, gives much greater pain. Suppose, if you please, the bone to be greatly splintered; an incision sufficiently large and deep to enable you to remove the splinters will be necessary, and they should all be removed if it can be conveniently done. Add to this a wound of the brachial artery, on which you must place two ligatures, one above the wound, and the other below it. You will now perhaps be able to put your fingers quite through the arm, and the wound will look very ugly; but you may yet add a shot through the fore-arm, you may even break a bone of it, or knock off a thumb or a finger or two; nevertheless the arm must not come off: it is only sixty seconds or so between an arm

on, and an arm off; but as a man is not a crab, and cannot reproduce a limb, he must run great risks to keep it.

The peculiar danger from a gun-shot fracture, and which is not so great in a common compound fracture, arises from inflammation taking place in the membrane lining the shaft and the cancellated structure of the bone. When this inflammation exceeds a certain point, it causes the death of the bone which it lines and nourishes, and gives rise to a corresponding, but peculiar and different action in the membrane or periosteum covering and nourishing the bone externally. This swells, thickens, and begins to deposit new bony matter, not only in its own structure, but external to it, and induces the neighbouring vessels to take on a similar action, to the extent often of an inch or more. This ossific deposition begins early. I have seen it by the twentieth day, and it begins earlier, and by the end of the fourth week it is often very remarkable. When our own sick and wounded were in due order, after the battle of Toulouse, in the old convents of the town, I thought it right to make the acquaintance of the physicians and surgeons of the Civil Hospital. They received me and my principal friends with the greatest kindness, and invited us to witness several of their operations for different complaints. On my inviting them, in return, to see our surgeons amputate three thighs, which was all they had to show, the gentlemen I requested to do them, came to me in the most mutinously complimentary manner, to beg I would operate myself, to which, as I found they were determined not to do it, and as their intentions were good, I was obliged to accede. Every leg was off in less than eighty seconds; but tying ten or twelve arteries was a more troublesome matter. They were all in the fourth week after the injury; and each vessel nearer than an inch and a half to the bone was so surrounded by ossific matter, deposited by the action I have alluded to, that the ligatures on being drawn tight, sounded as if cutting a chalky substance, and did even in some instances cut through. The two preparations of the arm bone I now show you, once belonged to two gallant soldiers of Waterloo. Mr. Morel cut off one, I amputated the other at York Hospital in 1816. They are each twice as thick and as clumsy as an ordinary bone, perforated in several places by holes, and containing in many parts pieces of the original bone. The new surrounding cases of bone is hollow, its walls in some places half an inch thick, of a deep brownish yellow colour; the old original bone is white, thin, and as if worm-eaten. It is a case of necrosis, with its sequestra, you will say; but mark the difference. The five inches of bone I now show you, I took out of a young man's thigh last year in this hospital; the new formed bone surrounding it being more than half an inch thick. After making a hole in it with the trephine, I was obliged to break it down with a mallet and chisel, used even with great force, before I could withdraw this dead piece. The dead bone or sequestrum is in these cases of natural necrosis in young persons, in one piece, even if the whole shaft is implicated, and may in

general be readily drawn out when sawn through the middle by the trephine. The young man got well.

In a gun-shot fracture, as you see in these preparations, the old bone is in several pieces, and could only have been drawn out after much chiseling at several places; and the articulating surface of the humerus in the joint is diseased, I presume, from the extension of inflammation. The danger you have to dread is the shutting up of these splinters of bone by the newly-formed ossific matter; and the subject you ought to have in view is the prevention of the extension, if not the establishment of this, which is to a certain extent a necessary and consolidating process. This is to be done by the suppression of the inflammation in the internal part of the shaft of the bone particularly, and of the arm generally. The splinters should be removed, if they will admit of it; the arm should be placed at perfect rest, if possible, in the bent position, duly supported by proper splints, or otherwise, as the case may require. Vascular action must be subdued, by the application of cold and by leeches, until cold seems to be disagreeable, when warmth is to be substituted. When suppuration is fully established, the remaining splinters may be very gently sought for and removed; but if this cannot be done, and time runs on, the firm thickening of the arm begins to indicate the deposition of new formed bony matter; and after a further lapse of time, a particular spot of inflammation at some part implies the formation of an abscess in the new bony deposit. It is caused by the irritation of a dead splinter; and when the abscess breaks externally, the probe will pass through it, and through such a small hole as you see several in these two preparations, and rests on the rough dead splinter. If you have not found this out before, you have found it now, and the dead bone must be removed. The earlier it is done, the softer the deposit, which in such cases will cut like Parmesan cheese intermingled with lime. Such was the practice of those in the Peninsula, who knew what they were about. The great difficulty I had to encounter was to teach, or rather to unteach, the young gentlemen who came to us from home. Those that knew any thing, were mostly filled with theory not founded on practical information; and many of their masters, when they condescended to notice us at all, have, when they learned a little better themselves, attributed the mal-practices of their own students to us. You may perhaps think, from what you have heard and read, that the case I have just shown you from Roliça is an accidental one. If you will enquire for Colonel Hodge in the spring, at the United Service Club, he will readily show you his arm, broken by gun-shot on the same day. It is even a better one.

During the retreat from Talavera, the wounded who could walk over the bridge of Arzobispo were afterwards collected at the convent of Deleytosa for treatment. Many underwent operations, and many lost their lives for want of proper care and conveyance during

this short march of half a dozen days. The broken arms were mostly amputated. I objected to some few undergoing this operation, and saved them for that day ; but I lost a friend thereby, who never cordially forgave me even unto his death.

At the battle of Albuhera, Sir Gregory Way, now a major-general, was shot in the left arm, which was broken in the upper third, at that place which Baron Larrey and the French surgeons of the day say, rendered amputation necessary. I desired that it might not be done. I have not examined it since it left my care on moving from the village of Valverde, and I believe the shoulder is stiff, but the use of the under part of the arm seems perfect. The last instance I shall give you, is that of the present master-general of the ordnance, Sir Hussey Vivian. He was also shot in the left arm, and had it broken before Toulouse. Sir James M'Grigor was with the head-quarters, on the left bank of the Garonne, and was pleased to depute me to act as chief on the right, where the principle part of the contest lay. The officers under whose charge he immediately came, (and they were well taught men at home,) decided for amputation ; but knowing I was on the field, they deferred for my opinion. On moving into Toulouse, after the battle, he had the able assistance of Mr. Gunning, and regained as good an arm as he had before.

I shall finish this part of my lecture with the following very general conclusions :—

1. An upper extremity should not be amputated for almost any accident or accidents that can reasonably happen to it from musket-shot. Whenever it is done, a special report should be called for by the inspector-general of hospitals, and the broken bones and other cause for amputation should accompany it.

2. If the head of the arm-bone entering into the composition of the shoulder-joint is broken to pieces, that portion of the bone should be sawn off, but the arm must remain. The patient will have all the under use of it.

3. If the elbow-joint is shot through, it is to be cut out, and the fore-arm brought into the bent position. The sufferer will have a very good and useful arm.

4. A fore-arm will bear so much fracturing and cutting, at the time and afterwards, that it should not be amputated without a special report of the reasons, with the broken bones, being sent to the inspector.

5. A thumb and a finger, or two fingers, are worth saving ; but a serious injury to the wrist-joint generally requires amputation.

6. The treatment of gun-shot fractures of the fore-arm must be conducted on the same principles as those of the upper arm. The fore-arm must be placed in the half-bent position, or at a right angle with the arm. The thumb must be uppermost, the hand not supported, and two solid splints wider than the arm, and duly padded, should be placed one on each side. The arteries, when

wounded, must be secured at each end, according to the principles laid down in my work.¹ The danger arising from necrosis is to be carefully attended to, and the motions of supination and pronation must, if possible, by early attention be preserved.

The splints used for the upper arm should be made of solid wood or tin, firm, although light. The anterior one should be made at a right angle, which angle should correspond with the bend of the arm. The anterior piece, or that for the fore-arm, should be hollowed, so as to admit of a very slight degree of pronation, as it is painful and not necessary that the hand should be quite supine.

7. If the surgeon does not know the anatomy of the parts well, he had better cut off the arm.

I have pointed out to you the miserable and desolate state in which the medical officers, not attached to regiments, are situated in a campaign; from which you will perceive how necessary it is that some amelioration should take place in their condition; not so much on their own account, as on that of the persons committed to their care. These poor creatures suffer in a manner it is quite deplorable to think of, and which, I must say, is a disgrace to the character of the country, and to every man and woman in it possessing one spark of the common feelings of humanity. If an unhappy wretch of a doctor has to travel two-thirds of a day, generally on foot, at the tail of a cart of any kind, shivering and wet to the skin, without food, with scarcely a dry change of clothing, with no one to help him in the common necessities of life, how can he attend to his sick and wounded? It is impossible. Self-preservation is the first law of nature. He must ascertain where he is to eat and sleep, how his clothes are to be dried, to seek food for himself and his beast, if he has one, and to do every thing, if he wishes to live himself, except attend to his professional duties. On his arrival at the halting-place, he ought to see his people housed, put to bed if possible, and give directions for their food, make up their medicines, see them administered, bleed them if necessary, or dress their wounds. A man worn with his day's labour, or however tired under a burning sun, may do all this for two or three hours more, if he has a hope of a tolerably comfortable place to rest himself in, or of something to eat, but not otherwise. At night he should again visit his sick, and arrange for a move shortly after daylight next morning, when all these duties are again to be repeated before the march is begun. Under existing disabilities, no man, with the enduring strength even of a jackass of Malta, or of Old Castille, could do it, and the sick must be neglected, and they have been neglected whenever the doctor was unequal to the duties.

Many a brave and gallant soldier lost their lives from the want

¹ On the Diseases and Injuries of the Great Arteries of the Human Body, with the Operations required for their Cure. 1830.

of that attention and care I have alluded to. Many a desolate and unhappy mother has mourned the loss of a son she need not have mourned for; yet England is the greatest nation upon earth, she professes to be the most civilised, the most humane, and did give twenty millions sterling for the relief of the negroes. It is to be hoped, however, that the six hundred and fifty-eight gentlemen who hold the purse-strings of the country may learn the truth, and I have full confidence that when they do, they will draw them on this point liberally, so that its gallant defenders may on no such occasions feel that its boasted humanity is not only for the ear.

There are two ways of proceeding, in order to enable the junior medical officers of the army to do their duty to the sick and wounded committed to their charge. One is by giving them an allowance for a servant, under ordinary circumstances, whether at home or abroad, and by granting them a soldier-servant in addition, on service, in whom they may repose the confidence of not being materially ill-treated unless he deserts. I will hereafter show where this servant may come from with advantage to all parties. The second mode of proceeding is by much the best, viz. of appointing three assistant-surgeons to each regiment on active service. A young man taken into the army at twenty-one years of age, which I hope will soon be the age at which he can obtain his diploma as a surgeon, knows nothing of the management of the sick, or of providing for them in any way; nor of the character and tricks of the soldier, however good his classical and general attainments may be, in addition to his professional knowledge. He is called upon to regulate and command upon points which he does not understand, and therefore does not do, and he has a great part of his duty to learn when he ought to be putting it into practice. He is comparatively inefficient. The assistant-surgeon of a regiment learns the duty of a soldier in addition to that of a doctor, and a military surgeon ought to know one just as well as the other. I always found in Spain, that three assistant-surgeons of regiments were worth four assistant staff-surgeons or mates who had not been attached to regiments. They know how to manage the soldier, as well as to physic him; they go into action with him as a point of honour, willingly and cheerfully; they attend him kindly and feelingly afterwards. They are equally under the control of the head of the medical department; he can and ought to be able to rule them as he pleases; and although he may often send them to the rear, their tendency is to return to their homes with the regiment in the front. The tendency of the hospital mate, or assistant, is, on the contrary, to get away to the rear, where he may perhaps find something like a little comfort. The expense of each man is the same.

I once ordered one of the best assistant-surgeons I had, to the rear, with a large party of sick; when I was informed that his commanding officer would not allow him to take his servant with him, being one, although a bad way of inflicting a punishment which

he perhaps had deserved. I remonstrated, saying it was my sick must suffer, and that I would have my duty done; but I did not succeed; and in order to show my feeling on the subject, I sent another assistant-surgeon out of his regular tour of duty. The general of division would have settled the matter in a second, but I did not choose to do it in that way, for it would have made us bad friends on a point of duty not strictly medical; and I was on such good terms generally with all the commanding officers, that they never disputed any thing I desired, when strictly in my own province. You will hardly believe, that an hour after daylight, when it was quite plain the enemy were quiet in their quarters, I have desired one wing of a regiment to take two tartar emetic pills, and the other wing two calomel pills, and have seen it done, being the best proof I can give you of the confidence of the officers, and of the discipline of the troops. You must learn on service to prevent a fever, as well as cure it, or at all events to be prepared to meet it in the best possible manner. A short time after we had a small fight, and the commanding officer of the regiment in question, a very distinguished soldier, was wounded towards the evening; and as a commanding officer, when shot through the body, becomes nobody, he was pretty much at the mercy of the doctors, or rather at mine, for I took good care his own regimental officers should not stir from the regiment. He was not the worse off for being in my clutches, as I wished only to read him a gentle practical lesson, without almost making him feel it. I removed every body from the village except himself, knowing he had no conveyance, and allowed all the troops to pass except the rear. It was now late at night, and he sent to ask whether I really did mean to let him fall into the hands of the enemy. This was all I wanted, as I had always intended he should accompany me. I therefore went to him, saying I had come for him, as I had arranged; but he had no means of moving, so I offered to lend him my horse, by the side of which I walked until morning. We never alluded to the old affair; but we never had a difference about doctoring afterwards; and he has since paid me, in London, the highest compliment in his power, viz. he placed his life in my hands, under circumstances of great difficulty, and he escaped. If he should ever serve again, I am sure he will cherish well his doctors, if they deserve it, and I care nothing for them if they do not.

I remember a village on the great plain of the Guadiana, near Merida, in which three regiments were quartered in the sickly season in the autumn, when fever prevails. Three rows of hillocks marked the last resting-place of the dead on earth, and my attention was attracted by one row being much shorter than the other two. I found, on enquiry, that the regiments were very much of the same strength, and quite under the same circumstances. The doctors were equally able; two were men entering rather on the middle period of life, the third was a very young man, and perhaps the worst doctor of the three; but the short row

of tumuli belonged to him. I was very desirous of making this out, and after carefully visiting all the hospitals and quarters, I ascertained the reason. He was the better soldier, if not the best doctor. His hospitals were in better order, the materiel was more perfect, the labour bestowed on every part, except in physic, was greater, and five per cent. at least of human life was the saving and the result. I never saw it otherwise.

A staff-surgeon, who has not been a regimental officer, has this kind of duty to learn ; and if he tries it a little late in life he rarely learns it, or at all events rarely practises it, and from five to ten per cent. loss of human life is the consequence. It was the custom, at the commencement of the last war, to appoint gentlemen who had influence at home to the offices of staff-physician and surgeon, totally overlooking the merits of those who were serving, and had therefrom just claims for those appointments. This error has been corrected, but the situation of the staff officer has not been improved as it ought to have been ; he now knows his duty, it is true, but has not the means of doing it as it ought to be done on service. He is gazetted a staff-surgeon, which is stated to be a promotion ; and every soldier, on being promoted, knows he attains a step of rank even if it be only from corporal to serjeant ; but as the medical officer can hold no direct military rank or command, a relative rank is given him, which is of use only as it regulates his quarters, his baggage, his pension for his widow, his prize money, his horses, &c., and a regimental surgeon has this rank as a captain. When promoted, it is but natural to think he would then gain something by such promotion, as all other soldiers do ; but no, he is still to be a relative captain. He is to have no servant, but is allowed five shillings a week to find one, when he can catch either the money or the man. In the mean time, he is appointed to a duty which in the field he can hardly do well without four animals, and certainly with not less than three, and two servants, a proportion allowed to every staff-officer of the military branch. The staff-surgeon should always be promoted or made on account of his knowledge of anatomy, medicine, and surgery ; he ought to be the ablest of the officers of the corps, and imbued with the zeal and spirit of a soldier in all that concerns them and his department. He should therefore be promoted for his merit, and should feel that he has gained something, at least in rank and privileges, as his reward. So far from this being the case, he will find his expenses increased, his means rather diminished, his comforts greatly reduced. After years of service, any regimental surgeon can exchange with him on equal terms, and is equally eligible for promotion ; an arrangement which has been made of late years for the sake of economy. It is not then wonderful that few regimental surgeons can be found who will take a staff-surgeoncy, unless to escape the West Indies for a time ; and that few cavalry surgeons will even take a deputy-inspectorship of hospitals, unless they can be employed as such. The office of staff-surgeon is therefore one

nobody wishes to have, unless for some particular purpose of his own, unconnected with the good of the service; and then those gentlemen are generally too old or too idle for any severe and active duty. When this occurs, they would rather return to a regiment, and thus the promotion of the juniors is arrested. The last assistant-surgeon promoted to a surgeoncy with whom I am acquainted, was twenty-six years an assistant, the one a little before him was twenty-eight years an assistant, and it is not very uncharitable to suppose, that at fifty odd years of age he may be unequal to the duties he may have to perform. I have no hesitation in saying, that any such person will be unequal to the duties of a regimental surgeon before the enemy, if continued for any length of time. I shall not enlarge on this subject, but merely remark to you that the medical and surgical duties of the Peninsular war were done, when they were well done, by men from twenty to thirty-five years of age. An elderly man must be an indifferent operating surgeon, unless he is in the constant practice of his profession as such; and even then he cannot bend his back as long and as often as is required; he is like an elderly captain or major of infantry, disposed to get a cough, the rheumatism, or the gout, to say nothing of a stomach-ache after a night or two's exposure to a heavy rain, and to find his way to drier lodgings in the rear. If middle-aged men could be found of the iron mind and frame of my excellent and kind friend, Lord Lynedoch, my observations would be worth nothing; but I am afraid there are, and have been, few in the world possessing his ardour and principles.

Of the senior branches of the medical department, I shall only say they are worse treated than the juniors; but my old and able friend, Sir James McGrigor, understands this subject better than I do, and will, I hope, be able to improve their situation. There is no man has more love for his profession, more kindness of heart, a greater desire to act fairly and honourably to every one, but he is without the power of granting promotion except to a very few. With assistant-surgeons of twenty-eight years' standing, and every other situation in proportion, a man must be almost an angel to please any body, and more than an archangel to please every body. His office is one that nobody can envy him under such circumstances.

Lest it should be supposed that, in the foregoing observations on army doctors, I should mean indirectly and covertly to censure any particular persons, which is not my object, I shall proceed to show you how the legislature has thought fit to treat the civil doctors, and I do not think you will find much difference.

When a convicted felon is found, previously to execution, to stand in need of surgical assistance, it is provided by act of parliament that he shall be attended by a man possessing the only known qualification in the empire in surgery, viz. a diploma from one of the three Royal Colleges of Surgeons. Before a gentleman can be an assistant-surgeon in the army, he must have the same

qualification; and it is also required from a surgeon in the navy. By the poor law bill, this qualification, small as it is, is laid aside for the poor, thus placing them in a worse situation than a convicted felon, or a soldier, or a sailor. It is stated instead of that qualification, that the doctor to attend them shall be a medical man duly licensed to practice, for which person the legislature must send to Australia, from whence he may come perhaps with the black swans, there being no such man known in Great Britain or Ireland. In these countries a man may be either physician by a degree, surgeon by diploma, or apothecary by license; but no one qualification embraces the others, and the words medical man are just as indefinite as they would be found in the law, if the word lawyer were used to describe that class of men as fitted for all the higher offices. The misfortune however is, that it has pleased the executive to understand, that the legislature meant by the words, medical man, an apothecary, because he has a license to practice as an apothecary, and the boards of guardians, acting under the act of parliament, take an apothecary, and make him a surgeon by their own authority, and agree with him to do the higher operations of surgery, which he is not qualified to perform by any other known authority, at the lowest price they can grind him down to; thus placing the poor man when sick, in a worse situation than a convicted felon. By this reading of the act of parliament, gentlemen, oftentimes illiterate, are enabled to allow the most ignorant to compete with the most able, and to make the decision depend not on ability, but on the saving of money. An act worthy of the lowest state of barbarism in any country, and very disgraceful to the parliament which enacted such a law. The only excuse for them is, that they did not know what they were about; that they took it for granted, the designation of medical man was good, and sufficient. If it had been a matter connected with the church or the law, the heads or authorities in these professions would have been consulted by the person at least who drew the bill; but being a matter only of human life as connected with good medical treatment, every gentleman thinks himself entitled to dabble in it. The chief commissioner, Mr. Frankland Lewis, who possesses one of the best and kindest hearts in the world, has done his best to remedy the evil, but he cannot give a new reading to the law. There are also many places in which persons qualified to act as surgeons or even apothecaries cannot be found, and no one can desire impossibilities; but even this is the fault of the legislature. Five years have elapsed since a bill for the regulation of surgeons and apothecaries in England and Wales, was brought into the House of Commons, by the authorities of these two bodies, who agreed in its provisions, with one addition, to be afterwards made in committee. This would have rendered the public great service, and removed various disabilities and vexations under which the profession labours, and have prevented many of the difficulties which have since taken place, and its defects when clearly shown might have been amended. It was opposed by Mr. Warburton, and others, and

turned over on the plea, that a more extensive enquiry was necessary before a good and comprehensive bill could be framed, capable of removing every grievance. What followed? Mr. Warburton had his committee the year after; it sat, or rather he sat nearly alone, as chairman and committee for several months; he published three large volumes of evidence, but has made no report; and for five years therefore the public has been deprived of the advantages which would have been obtained from the rejected bill. This is not all. The college of surgeons of London, instead of advancing and improving with the times, has stood still, waiting for Mr. Warburton's measures. Instead of increasing its demands on the candidates for its diploma, as had been done every two or three years for the last fifteen years, and as it would have done long since; instead of insisting on a short but sufficient *bonâ fide* education, in the place of a long, idle, and insufficient one, by which both parents, and the public would have been greatly benefited, they have done nothing. That they have done so is not my fault. Mr. Warburton cannot make a report from his evidence, which shall be founded on fact, because a part of that evidence is entirely hearsay matter; many parts which refer to facts are not true for the same reason, and on one side only was there any cross-examination. A committee of the House of Commons, desirous of knowing the truth, and being totally unacquainted by education with the subject, ought to have proceeded like an election-committee, and have allowed each party implicated, whether appellants, or defendants, to have had one such medical counsel as they pleased, with fair right of cross examination in the usual manner. The committee might then perhaps have made out the truth, but as people wickedly say that small evidence will sometimes enable even an election-committee to decide a question, I fear a committee of the House of Commons, as it is at present constituted, is not the best mode of proceeding, in order to elicit it in medicine.

I shall conclude this subject by drawing your attention to the fact, that neither the lawyers, nor the churchmen of the three kingdoms, have been able to form one code of law, or of religion, for them. Nor can any one form one code in medicine, without repealing all the acts of parliament, and abrogating all the charters which have been granted by various kings for three or four centuries past; a proceeding which I do not think the government will recommend, or the legislature sanction. You will perhaps ask me what can be done under such circumstances? the answer is simple, and the mode of proceeding as much so. Let a secretary of state, or a chancellor of the exchequer, write to the different universities, colleges of surgeons, and societies of apothecaries, desiring them to communicate with each other, and with him, on such points as they would wish to have settled by act of parliament, for their mutual advantage and that of the public. These bodies would, I suspect, soon come to a right understanding, as far as their own interests were concerned, and I hope those of the public. The colleges of

surgeons of London, Dublin, and Edinburgh, feel their respective disabilities too strongly, not to embrace readily any proposition which would lead to their final settlement. The other two bodies would not, I think, be very intractable. The opponents on all sides should even have fair play, and any great functionary would be able to settle the matter, both civil and military, to the advantage of all parties and of the public, with very little trouble, in less than two months. But no functionary, whether whig or tory, can find time to trouble himself about it; and the public must continue to suffer, until some one shall be found who may have time, and humanity enough to undertake it.

The campaigns of 1793 and 4, followed by that of the Helder in 1799, seemed to have left little impression on the minds of the medical chiefs of the army in 1808, as to the wants of the sick and wounded soldier; and very little more on the minds of those whose duty it was to attend to the conveyance of troops to the scene of action at the commencement of the war. The troops were embarked in transports, maintained at a great expense, and commanded by men who were oftentimes quite incompetent to the charge committed to their care; and the loss of ships, and the loss of lives, which frequently occurred, have been usually set down, after formal enquiry, to unavoidable accident, when, I have little doubt, they really arose from extreme ignorance or negligence. I never hear of the loss of a transport having either troops or convicts on board, without being very much of that opinion, and for which I will give you some of my reasons. I embarked with General Spencer's force, and sailed from Portsmouth in December, 1808. On Christmas-day it blew a gale from the southward, against which we contended in vain. The men-of-war made a signal, which we afterwards discovered to be that for the first rendezvous, viz., Falmouth; but the instructions of the master of the transport had it not. The flag was there, but the agent had not taken the trouble to have it painted of the regular chequered colour, and this was the case with others, so that we did not know it when we saw it. After ten days more contention against the elements, and accompanied only by one other vessel, we bore up of our own accord for Portsmouth; and on the way met a privateer, who ran under our stern, but, finding us full of men, did not like to meddle with us, or we should have found our way to France. This misfortune would have been set down to the elements, or any thing else, rather than to the negligence of the agent of transports, who had not taken the trouble to see that our signals and instructions were correct. He had not, I suppose, any yellow paint, and could not take the trouble to write against the plain flag that its colour was chequered yellow and blue. When I came from North America, I kept the ship's reckoning, and took the daily observations with the captain, which indeed I had done before on going out, and we made the Lizard with the loss of only half a day's sail, and afterwards the Start. From this point we took a new departure in the afternoon, and the next morning found

ourselves in a fog, by my reckoning, on the back of the Isle of Wight, by the master's, twenty miles from it. As he would not slacken sail, or alter his course, I went forward to look out, and soon saw the breakers. He was frightened half out of his life, but the ship answered her helm, and when we were fairly about, the shore was close under our stern, being St. Catherine's bay, as we learned from a fisherman shortly afterwards, when the fog cleared away, leaving a beautiful summer's day. When the other officers laughed at him for being beaten by the doctor, he replied, shaking his head, it is true enough, gentlemen, but it all comes of doctoring; which he believed was something like magic, and taught every thing. General Spencer sailed once more from England, and arrived at Gibraltar. Here another accident happened. The St. Domingo transport, in which I was, anchored on the bank in the bay, and we all went to bed, being in harbour, except the watch and the mate. Being a bad sleeper on board-ship, and knowing the carelessness of the sailors, I went on deck in the middle of the night, and to my astonishment found the ship was drifting. The mate, on being awakened from his nap, under the windward bulwarks of the vessel, would not believe it, until I showed him the cable nearly right up and down. Well, we turned up all hands, got sail on the ship, and the moment we tacked, the battery at Algesiras opened upon us, (it was before we made friends with the Spaniards,) and after some trials, they sent one shot through the accommodation-box on the poop. It made such a noise, and such a hole, that a harlequin from Drury Lane would have been delighted to have had an opportunity of jumping through, if he had been there. We got half-a-dozen more shot from Cabrita point on passing, and then beat our way back, to the astonishment of the fleet and the garrison, who could not conceive what we had been at. If I had not happened to go on deck, we should have awakened in the morning in Algesiras. My last turn in a transport was from Lisbon to Santander, off which port we arrived in the evening, but too late to go in without a pilot; so we stood off and on, and at last lay to, with a good fine breeze on shore; the tiller lashed a lee, and the mate and one sailor to keep watch. At midnight I looked out of my port-hole, and saw the ship was making way fast, and approaching the shore, and there was a very odd noise from time to time on deck, as if the tiller was wagging about at its own pleasure. Thither I repaired forthwith, and found this to be the case. The tiller had got loose, the mate and sailors were asleep, and the vessel was fast going into Santana, under the guns of which we should have been in another hour. It is therefore with no small satisfaction I have seen that the smaller frigates are to be fitted out as troop-ships. I have heard it said that some of the smaller line-of-battle ships will be equipped in a similar manner; but not, I hope, to carry troops in the beginning of the season, to Canada; for if a 74 should take it into her head to manœuvre against an ice-berg, in April, on the coast of Labrador, she will probably bump; or if she tries a *pas de*

deux in the Gut of Canso with another, she will, in all likelihood, make the *faux pas*.

The army landed in Mondego Bay, under the orders of the Duke of Wellington, with the expectation of seeing the enemy forthwith; but no arrangements were made for sick or wounded with the regiments. I went on shore with three days' biscuit in a haversack on my back, which contained besides a pair of shoes, two shirts, two pairs of stockings, washing and shaving apparatus, and a pocket-handkerchief. I was ordered to purchase a mule or an ass for the instruments and medicines, by the commanding officer, who could not give me the money to buy it, nor was any allowance then made for it, as will be seen by the duke's despatches. I had two one-handed men attached to me, whose hands I had cut off after maiming themselves in America, and who had hitherto been necessary cleaners,—a class of labourers not required in Portugal. These fellows could saddle a horse or a mule nearly as quickly and as well as if their hands had not been amputated, and having done good service until after Talavera, they retired on a pension for the loss of their hands in action, no one disputing the fact of their having been lost before the enemy. They took care of the jackass that carried the physic, and surgical stores in a biscuit bag, which I begged from the master of the transport, there being nothing else to be had; and thus we set off to fight two or three battles and take Lisbon. By his grace's despatches, I see that two bullock-carts were demanded and granted for the medical stores of the army, which, his grace further specifies, were to carry 25 bearers, one case of utensils, principally, I believe, tin kettles, spitting-pots, and chamber-pots, and one medicine-chest; which specification I know to be critically correct, as the two carts with the above contents, came into my hands at Roliça, to be taken on by me to Vimiera. I have no doubt there were plenty of stores on board-ship, but it is the arrangement, and the utter ignorance of the subject, which is ludicrous. Each surgeon should have had a pair of wicker panniers covered with bull-hide, and duly filled, of a good form and size, slung, and fitted to a proper pack-saddle; and there should have been a horse-transport or two, to carry a horse for the field-surgical stores of each regiment, and from half-a-dozen to a dozen spare ones, similarly accoutred, for extra stores, with a man from each regiment who understood the care of a beast. The extra animals, panniers, stores, &c., might, on landing, have been distributed, one to each brigade in charge of the surgeon best likely to take care of them. It was very unwise to trust to an enemy's country for this supply of animals, and a very paltry economy on so large an expedition. In our own country, such, for instance, as Canada, the horses are the only part of this equipment which ought to be omitted, and they should be furnished by the commissary-general, as one of the first parts of his duty. The allowance made to the surgeon should be sufficient to enable him to keep it up, for it should be an animal more than equal to its work, and should invariably march before

the last section of each regiment, and should never be allowed to go to the rear. When we marched to surprise the French, on the advance to Oporto, an order was given for all the baggage-animals to go to the rear. I, however, placed the mule with the physic, and the mule with the entrenching tools, in this situation, and walked and rode by the side of them. In the middle of the night, the general of the division (since dead) passed, and was furiously angry at the order having been disobeyed, and desired to know for what reason I dared to have two mules there. I very submissively replied, that as it was understood we were going to surprise the enemy, it was very probable that they might like to fight rather than be taken, and that we might thereby have some wounded, when the surgical stores would be wanting. He then desired to know what business I had with the entrenching tools. Now I dared not say that such a thing might happen as the pickaxes being wanted to knock down a wall, or for other military purposes, so I very maliciously replied that there might be some killed as well as wounded, and it might be, I thought, as well to bury them. This only made him the more angry, and he ordered them to the rear instant. In about ten minutes the aide-de-camp came back to say the general would allow the mules to return. As I was quite sure I was in the right, and as events proved it, I told the aide-de-camp that they had been gone so long, he had better go and find them, for I could not undertake it; and as the poor fellow saw the folly of the proceeding, he very quietly went to the rear, and brought them back. In this way we began,—how did we finish? When we crossed the Garonne, to fight the battle of Toulouse, the left flank company of the fusiliers crossed the bridge of boats first, *en tirailleur*, then the band of the fusiliers, playing the British grenadiers, then my two mules, as belonging to the chief of the medical staff on that side the water, (and they were the only mules allowed to pass except those of the regimental surgeons,) followed by Sir E. Pakenham and myself. Two French videttes galloped forwards, fired two shots over our heads to announce our crossing, and then retired. Times and men were altered, and it was well known then that a doctor without his apparatus was not much better than a battery of artillery without ammunition. In more peaceable times, the medical staff mules may march with the general's baggage, but when there is something to be done, they should never be out of the doctor's sight; he should be made to keep them equal to any service which infantry can be called upon to do, or mules or horses to perform.

Under these circumstances we fought the battle of Roliça, the surgical part of which, the surgeon of the 9th, Mr. Brown, and I, had nearly to ourselves, for the two bullock-carts and the hospital staff were a long way in the rear. They came up, however, at night, worked with us on the 18th, and relieved me on the morning of the 19th, when I started for the army at Vimiera, with the two carts, and stores in question. I wished the carts at the devil in the first instance, on account of the delay they occasioned; but very

soon took a particular fancy to them; for we found the French cavalry patrolling between Lourinha and Vimiera, to the great alarm of both the natives and ourselves. They counted on their fingers two patrols of an officer, and twenty men each, one being before, the other on one side of us, and told us they would cut us to pieces if they caught us. I had some twenty old soldiers with me, all of whom I knew well, and two or three subaltern officers of other corps, who were taking advantage of the convoy, and whose duty it was to fight. I tied the heads of my second bullocks to the tail of the cart which preceded them, and thus continued our march across the country, which was open, although hilly, and soon satisfied my old soldiers that, with their backs against the bullock-carts, they were not to be thrashed by a patrol of cavalry. The pots and pans arrived safe, ready for the battle of Vimiera on the 21st. The 20th was a beautiful day, and I spent it happily with three officers, my messmates, who are all since dead. Captain Gauntlett fell, mortally wounded, on the hill at Talavera, forming the left of our position. He was struck on the side of the head by a ball, which cut his hat, and carried away a portion of his skull and brain. It ought not to have done this, if his skull had been of any thing like an ordinary thickness; it was unfortunately, however, as thin as thick cartridge paper used in packing: it was the thinnest bone I have ever seen, and he lost his life in consequence: he died in my arms in Talavera. Captain Humfrey was struck on the hip by a cannon-shot at Albuhera, which carried away the limbs of two men behind him, and died on the spot, encouraging the advance of the regiment, for the honour of old Ireland, of which he was a native. The third died in bed, Lieutenant-Colonel Stopford, promoted to that rank from home, and unattached; he rode with me the whole fight of Toulouse. The moment the last redoubt on the enemies' right was taken, we rode up to it, and when all was quiet, and I was giving directions about my wounded, the French fired their last shell,—the last, I believe, that was fired in anger against us in France; it burst just over his head and mine. When our first fright was over, he laughingly said, if that shell had killed us both, which of us would have been called the greatest fool? To which I replied, that he would only be called unfortunate, as an amateur soldier, but that I should be called the fool. It is quite impossible for a regimental surgeon to be out of fire, if he does his duty, and a medical staff-officer can scarcely be out of the way of cannon-shot, and the doctors are therefore very unjustly treated in being classed with the clergymen and the commissaries. They do not actually fight, it is true; but I will venture to say that the surgeons of the fusilier brigade, in Spain, have been under more fire, take it all in all, than a large proportion of the general officers of the army. I will tell you of the unkindness with which one of these gentlemen is now treated, after thirty years of active service, if I were not afraid my mention of him might do him an injury.

The morning of the 21st dawned upon us in all its brilliancy;

distant clouds of dust announced the approaching contest; our breakfast of biscuit and water, with a bunch of grapes, was soon despatched; and we at last moved to the high ground on the left of the British position. The fight had begun before we got there, and the French advance was as usual, valiant. The fire of their guns was heavy while it lasted, and it was at this moment I met with the wounded officer of the 40th regiment, whose case I have alluded to in the third edition of my book,¹ whose ball I pulled out of his thigh, for three inches, hanging in his shirt, like a shilling at the bottom of a purse. Whilst I was doing this, he got a crack from a spent ball on his hind quarter, which made him jump, and we thought it advisable to retire into a water course which allowed our heads to be under cover. Shortly after this Sir H. Burrard came on the field, looking remarkably well, as if for a field day in Hyde Park. I never saw him before nor since, that I know of, nor have I the slightest intention of saying any thing disrespectful of his memory, but that one sight of him quite convinced me he was unfit to command an army in the field. I am satisfied that his head if examined phrenologically, would have responded to the best wishes of the Secretary of State who selected him for the service, and that he possessed all the talent a commander-in-chief ought to possess; but he outweighed it below: he was too large in the waist; and although a good soldier may require a large bump or two in the head, he ought not to have them in the belly; and if the Government of this country will allow soldiers to gratify their military propensities and serve before the enemy, they must take care that they first mortify their gastronomic ones. Lord Byron says, "I hate a dumpy woman;" although the particular dumpy alluded to by him was, I assure you, worth looking at; and I equally hate a dumpy soldier; not that they cannot stand fire, but because they cannot stand fever, at all events I have never been so fortunate as to see one. The Duke of Wellington has several times, in his despatches, insisted upon it, that general officers going out to Spain should declare upon honour as to their willingness, if not capability, to serve the war. The reverse of this should take place with inferior officers; and if they have any physical disability, rendering them less able and less active than a soldier ought to be, they should not be permitted to go. They should be allowed, if they have deserved it an honourable retirement; and the 658 gentlemen of the purse-strings should draw them liberally in their favour, if they wish the country to be well served. The country expects every man, before the enemy, to do his duty; but if men are sent, who are physically incapable of doing it as it ought to be done, disgrace and disaster can alone be expected.

General Nightingale's brigade, to which I belonged, formed in

¹ Treatise on Gun-shot Wounds, on Inflammation Erysipelas and Mortification, on Injuries of Nerves, and on Wounds of the Extremities requiring the different Operations of Amputation, &c. &c. 3d. Edit. 1827. .

line on the brow of the hill, on the right of the position, of the left of the army, with Sir Ronald Fergusson on their left. The French made a show of advancing across the valley, and their officers gallantly set them the example ; but it would not do ; it was only a straggle, and they soon retired. Our people were calling for the order to advance ; but I told them to keep themselves quiet, for I had overheard enough of the conversation between Sir H. Burrard and the Duke, a little before, to know there was to be no advance. I had even heard an officer invited to dinner ; and I therefore set about my own immediate duty, sure of not being interrupted.

If the affair before Rolica had been highly honourable to the few troops engaged, this had been glorious to a greater number. They were equally important to the advance and improvement of British surgery ; which seems to have been utterly neglected in the previous campaigns of Flanders and the Helder. There was a single house in the rear near the front of our position, and I dare say it is there still, which I had selected for such wounded as I could collect of all parties, having few of our own. I had cut off two or three legs with the help of my assistant, when at last in amputating a thigh high up, the tourniquet buckle broke and it fell to the ground ; the bone had just been sawn through, and the limb fell with it ; the patient was likely to bleed to death. I seized the bleeding end of the femoral artery with the finger and thumb of one hand, and compressed the artery in the groin against the pubis with the other, whilst my assistant, Mr. Curby, put a ligature on the vessel above my thumb. I found I had perfect command of it with each hand, and when it was secure, and we had time to recover from our alarm, I could not help saying ; Why what could Mr. John Bell mean by frightening us all so, by saying it was impossible by ordinary pressure to prevent the passage of blood through the femoral artery ? Thinking however I had met with an exception to the general rule, rather than that I had found out the general rule itself, and that Mr. J. Bell might still be right, and I in the wrong, I went into the village of Vimiera early next morning to try the point on another amputation or two. I worked away all day, few people being very glutinous of work, and established my fact that I was right, and that Mr. J. Bell had given the exception and not the rule. Since that, you know I never apply a tourniquet, for various reasons I have assigned in my work, except when I have bad assistants ; and in the latter part of the war, few who knew any thing of their profession cared more for any artery in the body than the troops did for an equal number of the enemy. Both doctors and soldiers thought themselves sure of their opponents. When we came home in 1814, several of us thought we had learned a good deal during our campaign ; but as we had not the vanity to suppose that we knew every thing, and that our contemporaries in London were standing still ; the best of us deemed it right to revisit the various schools at which we had received our early education, and hear what the different teachers had to say. With a great deal of highly useful

information, we were surprised also to find that they knew little or nothing of our improvements. In describing the operation of amputation at the shoulder-joint, they could not conceal their alarms; and whilst they were screwing their tourniquets on the shoulders of the young gentlemen they produced as objects for observation, we were internally laughing with all the complacency, and bon-hommie their unvaried kindness deserved. I settled this matter by inviting as many gentlemen as pleased to come to the York Hospital at Chelsea, where I had two clinical wards. I took an arm off at the shoulder-joint without any tourniquet or compression at all; and in order that they might be more than convinced, I allowed the great axillary artery to throw its jet of blood over two or three of them, that they might see how easily and completely it was in the power of my finger and thumb.

Sir C. Bell, in his *Institutes* lately published, has endeavoured to support Mr. J. Bell's opinion, by saying that if he were wrong with regard to the principal artery, he was right in saying that the bleeding could not be stopped because the collateral vessels would bleed, and that a particular compression of the surrounding parts must take place to prevent this. But this is merely begging the question; none of these vessels give any trouble, or are worthy of the slightest consideration. When I come here, gentlemen, and cut off the tip of an old woman's finger, and a thread of an artery throws out its blood, I beg one of you to put your finger on it, that it may not spot my shirt-collar, and frighten the lady I may next visit; and I should do the same with those small arteries coming from the internal iliac in a case of amputation at the hip-joint. They are all in recent cases quite unworthy of your further notice, and in old cases they deserve but little consideration; in fact, as coming from a different source, they have nothing to do with the question. The operation of amputation at the hip-joint was not even shown, it was declared to be too barbarous to encourage, although we had done it often, and my successful case was actually seen in London, and was afterwards for years the only one that ever had been seen in Paris. An elderly gentleman sent for me at that time, saying, without further circumlocution, Sir, I have sent for you to know whether you can take my thigh out at the hip-joint. Seeing my patient was an oddity, I replied, I would do it with the greatest possible pleasure, and he desired it might be done at 12 next day. To this I demurred, as it was necessary to know the why and wherefore, and I begged a consultation with the three surgeons whose opinions he had taken. They all declared his case incurable. Mr. Cline pronounced the operation of amputation to be inadmissible, barbarous, and little less than murder. The second surgeon followed his example, and declared he could not countenance it by being even present. The third, Sir Astley Cooper, said, he would assist me if I would do it. It was handsomely and generously said, and as gratefully received, although I did not stand in need of aid, having my choice at that time of my old

Peninsular assistants and friends. Under these forbidding circumstances I thought it right to promise the gentleman only one hour to live after his operation was done; that I undertook to guarantee, and on these conditions, we did it. When the operation was done, I said, sir, I am happy to say your leg is off; to which he calmly replied, sir, it was a very unworthy member. I sat by his side for an hour, and when the time was out, I said, sir, you have outlived the hour, and please God you will recover. Sir, said he, please God or the devil, which you like. I believe in neither. My trust is alone in you. It was quite clear he was a monomaniac. The next morning he satisfied me however he was mad on two points. The apothecary, Mr. Stewart, came in, and was going to sit down when he begged him to wipe the chair first, and then spit upon it; and on giving him a pill, he insisted upon the box being shook three times, and spit upon. He was quite sane on all other points, and a remarkably well-informed man on most subjects; but he never could speak of religion without showing the aberration, nor see the apothecary, to whose profession he had an unsurmountable aversion, without proving it. I foretold, that this operation would nevertheless become too common; that the example we had set would be perhaps unnecessarily followed. I have reason to fear that this has been the case; that I have been prophetic.

After I had done the operation at Vimiera, I have described, and which led to such particular results, I turned my attention to a French officer who was just brought in. He was bleeding much, although not dangerously, from a wound in his face, and his white waistcoat and trousers were covered with blood. I have alluded to this case in my book as one showing, that gun-shot wounds will often bleed considerably without any large arteries being injured. I spoke to him in French, he immediately pulled out his little book of accounts, which every French soldier carries, and returned thanks for falling under my care, and gave me his watch and his money as a matter of course, and with the view of begging protection. At the first fight of Roliça, the kit of the dead soldier remained on his back untouched, until he was buried, and it is but just to say, that the British officers taken under the eye of the French General Brennier were not plundered. But our troops were apt scholars, and few dead or wounded escaped plundering after that day, whether friends or enemies; and the progress we made in arts as well as arms, was equally great. The contrast between Roliça and Badajos will be perceived, when I tell you that at day-light after the storming of the town, I saw thirteen officers lying dead on the great breach, stripped stark naked in the night by their own friends or their allies. In such a way does war destroy our noblest feelings.

Two days elapsed before I could find time to seek for my wounded French officer, I then found him with several others without a sous amongst them; they had been thoroughly well cleared out, although otherwise well treated, and they admitted

they could not have done it better themselves; it was *la fortune de la guerre*, and quite natural. My poor Frenchman came forward to renew his acquaintance, for although I had apparently robbed him, I had still been kind; and kindness begets kindness. You should have seen him open his eyes when I apologised for not having found him before to return him his watch and money. They did not believe I was serious, but when they saw me place the watch and the doubloons in his hand, they could not restrain their feelings. I was an *ange de dieu*, the most beneficent of human beings. I assured them it was only a common act of kindness that every English gentleman would feel himself bound to do. This sentiment seemed, however, rather a matter of reproach to men who had avowed that plundering was quite a natural propensity, and they would not admit of it. I was therefore obliged to take my leave, with a full determination to plunder the first Frenchman I came across, in order to satisfy myself, I was but a man.

The convention, so called, of Cintra followed, and gave us all considerable dissatisfaction. A great part of the army never could understand the why and wherefore, and officers and men did not fail to express themselves in a very disorderly manner in the hearing of the highest authorities. That they had sold themselves to the French, few doubted, although there was not, nor is there the slightest foundation for the suspicion. Years have since passed away, and the propriety, or the reverse of the proceeding has been discussed by various parties, with different political and military views and feelings. The two principal of them of late date are Colonel Napier, and the author of the critique on him in the *Quarterly Review*; but neither of them enter into the feelings of the army against their superiors as generally expressed at the time. The discontented officers and soldiers would never have objected to a convention for the evacuation of Portugal, if it had been made and ratified the day after the battle of Vimiera, viz. the 22d, before they knew that Sir John Moore's force could land at Maceira and be in time to assist; but they did strenuously object to its being made on the 28th, when they knew they had that assistance. If the armistice had been broken on the 28th the whole British army of 25,000 men might have advanced on the 30th. Sir Harry Burrard in bringing down Sir John Moore's force to Maceira did better as it turned out, than if he had landed it in Mondego bay; he gained several marches by it, and instead of that force only reaching Lisbon on the 14th of September, as shown by the commentators and critics, it might have been easily there on the 3d. It might have done this even if it had gone by the same road, for Villa Franca on the Tagus is only two short marches from Torres Vedras, and from Villa Franca to Lisbon it is only 21 miles of very good road, with a creek to cross at Sacavem, which would have been crossed as readily in one case as the other. The Duke of Wellington has shown in his despatches that he would have marched from Sobral to San Antonio de Tojal; Sir J. Moore's

force taking the road by the Cabeça de Montechique, on the 31st; and if he had commanded the army and had done so he would have been in Lisbon on the 2d of September. We should have had a race for it, but the whole French army left unkilld would have been prisoners, and they would gladly have compounded for the surrender of those at Elvas and Almeida. That Junot might have crossed one third of his army into the Alentejo is possible, but I doubt it, and he must have sacrificed the remaining two thirds and all his stores and baggage. That the soldiers of the army were right in the opinion they entertained, is quite as clear as that they were wrong in the open expression of their discontent; but they only asked to do what the Duke of Wellington shows he advised, and says he would have done. Although many may doubt his judgment on political matters, few will express it, or even do so on subjects purely military, and no man can be a better judge of what is consistent with the character and honour of a British officer. I shall therefore conclude by supposing that the gentlemen who approve of the convention on the 28th may probably be in the wrong, and that British history instead of defending them may at least admit, that it is possible they erred in judgment.

Having paid a second visit to Cadiz, which only increased my admiration for the *muchachas muy lindas* of the *Calle Ancha*, the fashionable street of that city. I returned in time to accompany two regiments on a march to Almeida in support of Sir J. Moore. We here performed a piece of animal magnetism, which far exceeds any thing the professors of the present day will I believe ever attempt to do. When we arrived at Castello Branco we halted a day, and therefore had time to prepare our operations. The French had somewhat more than two regiments in Alcantara and its neighbourhood, and this is the essential point for observation, in proof of the superiority of our powers to those enjoyed at present. I believe the principal animal magnetisers do now not claim a power in intensity or force more than equal to twenty or thirty feet, although they can operate on a lady who is duly predisposed at that distance through a door two inches thick, but then only when the magnetiser has his whole mind intently engaged in this one object. It so happened that the minds of the French were as much engaged upon us as we were upon them, and the effect was remarkable, for instead of being bounded by 20 or 30 feet, it extended to as many miles, with a mountain or two between us, and the Tagus to boot, which ought to be as good as a door at any time. Each party turned out as nearly as possible on the second day at the same hour after dinner, drums beating, colours flying, and all prepared for immediate action. No enemy appeared, the uneasiness arising from the extraordinary magnetic influence, which were so liberally infusing into each other, now took complete effect, and both parties simultaneously turned round and walked off, being quite unable to stand it any longer. The British never stopped until they arrived at Abrantes. The French took refuge in Truxillo, (pronounce that

x as a letter intermediate between it g and h,) and each party only felt themselves free from magnetic influence when they were 150 miles asunder. The day we started, it poured as if the heavens had opened all their watery stores upon us, and no poor devils were ever in a more wretched state than we were on reaching Cernados, one of the most deplorable villages in Portugal. We had intended to cross the Tagus at Villa Velba, but the river had greatly filled in the course of the evening and it was not certain we could cross on the small flying bridge which existed in those days. Under these circumstances we turned short to our left next morning before daylight, and took to the mountains by a bridle road or track, and never stopped until sunset. The bullock cars could make little of this, and half way they were brought to a stand still. What was to be done? After due deliberation it was thought desirable to burn the carts and the baggage. This consisted principally of 20 complete sets of bedding packed in four bales in the hardest manner and a trunk containing the commanding officer's best suit of clothes, which had no business there. At midnight the conflagration took place. I learned afterwards from a French officer that they were walking off as fast as they could at the same time, under the magnetic influence we were imparting to them, when they saw the light of this fire which they took for a beacon to alarm the country people, in order that they might cut off some of the stragglers. Once he said it seemed to blaze up for a minute or two with more than ordinary brilliancy, which added to their confusion; and he asked what we had done to cause this effect, and did not seem pleased, when I assured him I could only attribute it to the indignant combustion of the colonel's best pair of white leather breeches. Animal magnetism can, you see, do greater things in Portugal than in London.

FOURTH CLINICAL LECTURE.

ON COMPOUND AND GUN-SHOT FRACTURES OF THE THIGH!

Delivered Jan. 6, 1838.

I approach the subject of compound and gun-shot fractures of the thigh with greater diffidence than I do any other in surgery, not from want of experience, or, I trust, of observation on that experience, without which it is of no value, but from the unfortunate nature of the results. Nothing is more easy than to cut this difficulty, by saying, cut off the limb; but amputation is scarcely a less miserable result, and is at all times, even when successful, which in such cases is very doubtful, an opprobrium to surgery.

The best thing I can do, I believe, gentlemen, is to read you what I have written in my work on gun-shot wounds, &c. &c., and then give you the further treatment.

In accidents in civil life, the bone is in general merely broken across, or obliquely, with the point thrust through the soft parts. In gun-shot wounds, it is generally the reverse, being much shattered, and not appearing through the integuments; depending very much on the part of the bone injured, and the manner in which it has been struck by the ball.

If a musket ball, in passing through the thigh, merely touch the bone, it may fracture it directly across, but it will generally do it obliquely, so as to cause some little shortening of the limb when cured under the most attentive treatment; but when a ball strikes the shaft or body of the femur, it shatters the bone in every direction, although it may not pass through: it does not merely break off four or five small pieces, which may be taken away by cutting down upon the bone, but it breaks it into large pieces, generally oblique and very pointed, that retain their attachment to the muscles inserted into them. The fractures extend far above and below the immediate part struck by the ball; and, as far as depends upon my information from the examination of limbs that were amputated, further downwards than upwards; so that from a fracture in the middle of the thigh, I have often seen fissures extend into the condyles, and cause ulceration of the cartilages of the knee-joint; but they seldom extend upwards as high as the trochanters. Of such cases, there can be no doubt as to the propriety of immediate amputation; but if the fracture did not communicate with the joint, when the middle of the body of the bone is broken into several large pieces, it is better to amputate before the inflammatory symptoms come on, than afterwards; for it must then be higher up, or probably cannot be done at all.

The danger and difficulty of cure attendant on fractures of the femur from gun-shot wounds, depend much on the part of the bone injured; and, in the consideration of these circumstances, it will be useful to divide it into five parts. Of these, the head and neck included in the capsular ligament may be considered the first, the body of the bone, which may be divided into three parts, and the spongy portion of the lower end of the bone exterior to the capsular ligament, forming the fifth part. Of these, the fractures of the first kind are, I believe, always ultimately fatal, although life may be prolonged for some time. The upper third of the body of the bone, if badly fractured, generally causes death at the end of six or eight weeks of acute suffering. I have seen few escape, and then not with a useful limb, that had been badly fractured in the middle part. Fractures of the lower or fifth division are in the next degree dangerous, as they generally affect the joint: and the least dangerous are fractures of the lower third of the body of the bone. Of these even I do not mean to conceal, that when there is much shattered bone, the danger is great; so that a fractured thigh by gun-shot, even without particular injury of the soft parts, is one of the most dangerous kind of wounds that can occur.

“Upon a review of the many cases I have seen I do not believe that more than one sixth recovered so as to have useful limbs; two thirds of the whole died, either with or without amputation; and the limbs of the remaining sixth were not only nearly useless, but a cause of much uneasiness to them for the remainder of their lives; they were indeed much in the same state as Bilguer’s invalids who were incapable of any employment, civil or military.

“It would be an interesting, and I am sure a useful enquiry, to examine the lists, or cause lists to be made, of British soldiers who receive pensions on account of incapability for service, from wounds with fracture of the thigh bone; and I am satisfied the number would be small, although the accident is not infrequent; and of the number thus receiving pensions, I will venture to predict, it will be found that in seven eighths the bone was broken below the middle of the thigh.

“After the battle of Toulouse, forty-three of the best of the fractures of the thigh were attempted to be saved; having been carried from the field of battle but a very short distance, well accommodated in hospital, and attended for the most part with great care, and surgical attention: of this number, thirteen died; twelve were amputated secondarily, of whom seven died; and eighteen retained their limbs. Of these eighteen cases, the state, three months after the battle was as follows: “Five only can be considered well, or as using their limbs. Two more think their limbs more valuable (although not very serviceable) than a wooden leg: and the remaining eleven wish they had suffered amputation at first, as they are not likely to do well; and if they eventually recover, which in many is doubtful, the limb will be distorted and unserviceable.” Of two officers with fracture of the femur, one died in the hands

of the French surgeons, in whose charge he fell during the action, and by whom he was skilfully treated; the other, with the greatest possible attention and care, has preserved a limb, which I think he now wishes exchanged for a wooden leg.

"In the five successful cases, the injury was, in all, at or below the middle of the thigh. In the thirteen others, who retained their limbs, the injury was not above the middle third; and of those who died unamputated, several were near, or in the upper third, and either died before the proper period for amputation, or were not ultimately in a state to undergo the operation. Of the seven amputations that died, two were at the little trochanter by the flap operation, and the others, for the most part, unfavourable cases. In one case only was the head or neck of the bone fractured by a musket ball, which had entered on the outer and back part, and went through in front. This man was not pointed out to me for some days, and was not at that time, or ever afterwards, in a state to render amputation likely to be successful. He lived, however, for two months; and, from the dreadful sufferings he endured, I always regretted amputation at the hip-joint had not been performed at first.

"After other battles, in which I have had the care of fractures of the femur, the success has not been so great, but they were generally under less advantageous circumstances; and from the sum of knowledge thus acquired on many occasions, I am induced to believe, that in this injury amputation ought to be a more frequent operation than it is at present; and I think I am borne out in this supposition by the above statements, and by the general opinion of my brethren formed during the Peninsular war.

"I think it will also be conceded by those who are disposed to allow the advantage and safety of primary operations, that if the thirty-six of the forty-three who died, and have only partially recovered, had been amputated on the first day, the country would have had at least twenty-five stout men, able, for the most part, to support themselves by their labour, instead of five, or, at most, ten, who will not be entirely dependent upon their pensions and parishes for their subsistence.

"As secondary amputation is totally inadequate to produce this effect, the patient should be carefully examined, and amputation performed, when necessary, on the field of battle. If the heat of the weather be great, as in the summer of the Peninsula, Asia, or America, the hospital to which the patient must be removed at some distance, the means of conveyance bad, or the wounded very numerous, it is better to amputate, even in a doubtful case; and if the surgeon, by following this rule, should even cut off a limb that might have been saved, he will be amply compensated by the preservation of a number of lives, that would be lost by delay under precisely similar circumstances.

"In regard to officers, some little more latitude is to be granted than the above suggestions allow; for, as they can often procure

cool apartments in summer, good conveyance, plentiful attendance, and the best professional advice, all of which are occasionally wanting to soldiers, cases of disease and injury will always succeed in a greater proportion with them than with private soldiers in hospital; but not in so great a degree as to counteract my opinions in cases that are really serious.

“It is a difficult thing to persuade a surgeon unaccustomed to the treatment of gun-shot wounds, or the patient himself, when he sees but a small wound, that amputation is necessary; and as cases of success have been heard of by all, whilst the fatal ones are buried in oblivion, many officers will not choose to submit to it; they will rather hazard their future health and happiness, and undergo the most dreadful sufferings, for months, to save a limb, which, when cured, and their wishes are obtained as far as circumstances will permit, they find a useless burthen, and a source of inconvenience for the rest of their lives.”

Wounds from musket-balls, injuring the lower part of the bone, without communicating with the joint, do not require primary amputation; they are proper cases for delay, unless there be great destruction of parts.

In order to attempt, with a reasonable hope of success, the management of a compound or gun-shot fracture of the thigh, it is desirable the patient should be placed on a proper bedstead, of sufficient height from the ground to render him easy of access, and capable of affording him every necessary comfort and accommodation without moving. This will be best accomplished by a bedstead and mattress, invented by the late Mr. Gardiner and myself in 1815. The one he died upon in 1817 is now at Mr. Knox's, 107 Jermyn street. Mr. Gardiner, if alive, would have been now Lord Mountjoy, and I am disposed to call the bedstead by that name, to distinguish it from all others. It is so absolutely necessary in cases of diseased hip and spine, of loss of the use of the lower limbs, of injury of the pelvis, as well as in fractures, that one or more ought, in my opinion, to be placed in every permanent hospital in the British dominions. There is one now in use in the Westminster Hospital, and it has been the comfort and happiness, as well as the saviour, of more than one person who has lain upon it. I am aware of the difficulty of carrying these bedsteads to the scene of action in a distant country; I am equally aware of the expense: but Great Britain must give up all her pretensions to humanity, if she allows either of these trifling obstacles to prevent her brave defenders from having an absolutely necessary assistance for their recovery from their injuries, or for the safety of their lives. A bedstead, mattress, &c., complete may be easily bought, packed, and conveyed to the most distant of our possessions for ten pounds; and six of them may be carried upon any common cart to wherever they are wanted. If a second inclined plane and another set of bedding are added to the box, it will cost thirteen pounds, and will answer for two fractures. The battle of Toulouse gave forty-three

fractures of the thigh, out of 1242 wounded, which were attempted to be saved, and this may be considered as a fair average; and I should say that a corps of 10,000 men ought to be supplied with a reserve store of at least twenty of these double bedsteads, at an expense, perhaps, of £260. In Spain and France we had nothing of the kind; the consequence was, that many suffered intolerable torments, that might have been greatly alleviated, and many lost their lives. Not only that, many could not be attended to, from the delay and the difficulty of assisting them on the ground; and it is only necessary to have seen the horrible sufferings they endured, and which might have been relieved, to speak strongly, as I do to you. I wish it to be received as a voice from the dead, calling upon the gentlemen of England, upon this, and upon all other points, to do one of two things—to send their sons forth to fight, with every hope and every surety that if they fall wounded in the service of their country, they will have every attention and comfort afforded them that the talent, the capability, and the money of the country can bestow; or not to send them to fight at all. The Duke of Wellington, in his despatches (10th vol.), has expressed his opinion of the late Medical Board in no measured terms; but the present one, with all the knowledge and all the persevering labour of its able chief, can do very little better, as far as regards the exigences of the sick and wounded soldier, unless assisted by the treasury of the country in a very different manner to what has hitherto been done. I beg I may not be misunderstood. I do not want more pay for the medical officers of the army, the government has acted liberally towards them in that respect; but I want almost every thing else both for them and for the wounded. The misfortune is, that things in this country do not go through one channel, and unless one or two powerful men, or several smaller ones, will take up a question of this kind, it never can meet with the consideration it requires and deserves, in all the various quarters with which it is connected.

The position of a fractured femur must be essentially of one kind, viz., straight; for it is impossible to keep a man's thigh in the bent position on the side, and himself in the same situation. No power that is likely to be employed can prevent his turning on his back, and the union, if it takes place at all, must then be at an angle. The bent position forwards, or on an inclined plane, is defective, inasmuch as the matter, which must necessarily be secreted in abundance, will gravitate backwards, in spite of every care to prevent it; and in many instances will form abscesses towards the pelvis, instead of always running directly outwards by a fair and unobstructed passage. When a proper bedstead is used, a slightly inclined plane may be tried at a certain later period of time, and in some few cases the body of the patient may be raised even to the erect position. This must be done however with care; the object is to take off the action of the two muscles inserted into the little trochanter, which raise the upper end of the fractured bone

upwards and outwards; which you will invariably see take place after every amputation as high as the middle of the thigh. In simple fractures position will do this, and the inclined plane, whether by splints or other machinery, will effect it very well; but as an inclined plane can be rarely used with advantage in gun-shot fractures, the rising end of bone must be kept in its place principally by raising the body or by proper and well-directed padding; and its inclination outwards must be met by a similar direction of the lower part of the limb. The advantages I have alluded to, the army never hitherto had, nor any proper splints, nor any thing which could be called proper for the treatment of such fractures; but they will all, I feel assured, be in future supplied, and you will have the opportunity of ascertaining facts upon this point which will be of the greatest advantage to mankind. I point out how far we have gone before you; it is for you to show by how much you can exceed us.

Aware, from what I have said, of the nature of a gun-shot fracture in the arm, you know what you have to expect in the thigh, and must endeavour to meet it. First, by the removal of splinters, and extraneous bodies. The bone being larger than that of the arm, the splinters are often more numerous and larger, upon which depends the question of amputation; but that having been decided in the negative, they are to be treated in a similar manner, and the splinters, and extraneous bodies must be as far as possible removed. It must be borne in mind that they can never (I shall give the general rule) be all removed at once, or at the first, or even succeeding examinations; and it follows, that as they cannot come away of themselves, except they are small, incisions must be made for their removal, and before any quantity of new bone can be formed around them. This is a difficult and very interesting point of practice, which observation will render more clear to you. It is sometimes neglected, from the great thickness of the muscles of the thigh, and from the wound having been on the inside, near the great vessels, so as to render an incision of sufficient size in some degree dangerous. The thickness of the muscles does not offer a sufficient reason for avoiding an incision; and if the situation of the bone on the outside of the thigh be clearly known, a little reflection will show that it can be got at easily in that part, if it cannot in another. The bone I now show you is the crooked one I have alluded to from Albuhera. It has united at an angle, with a deplorable twist, on account of the wrong position in which the patient lay, and from the want of every proper means. That is, however, the least part of the evil; for a man can live with a crooked thigh; but the new formed bone is also obvious, and in various parts it hems in or surrounds several splinters of old bone, which are thin and small, although long, and could not get out. They therefore kept up an irritation which at last killed the patient at Elvas. The best cured fractured thigh I know of from Albuhera is Lord Ventry's. It was broken rather above the middle, but he is lame, and it even

now gives him some trouble. The thigh-bone I now show you is from Waterloo; it is a much better one, nearly straight, and the splinters were nearly all removed; but it killed the patient nevertheless. If he had had all the comfort and accommodations he would I hope have had by modern appliances, he might have recovered. The third thigh-bone I show you has evidently been amputated high up. It is one that was cut off after the battle of Vitoria. The bones have united by a mass of new formed ossific matter, which is hollowed like a scooped out orange rind. There is a long splinter of old dead bone locked in by it, and lying across, which kept up irritation, and ultimately led to amputation. It should have been removed at an early period. Even amputation, under these circumstances, does not always give relief, or save life; for, independently of the hazard of this operation high in the thigh, to which I have sufficiently alluded, the femur above the injury is not always sound. It is suffering from some irritation of its internal membrane, and the saw only adds an injury, which causes an increase of mischief. The internal membrane dies, and a necrosis takes place for several inches upwards, even as high as the small trochanter. Here are three specimens of this disease after amputation. You see the sawn part quite sharp at its edge, showing that it lost its life forthwith, that the absorbents did not act at all in rounding it off, as they do in successful cases. The five or six inches above are in the rough worm-eaten state of a sequestrum. It is the old bone, which has come out of a new case, formed by the periosteum around it. Although this state of evil occurs after gun-shot fractures, I am aware that it can also take place after amputation from more common causes; and I have therefore warned you against the old practice of scraping the periosteum from off the bone at the part where you are going to saw it, or of making two or more jags with the saw in consequence of its slipping. I have told you that 70 to 80 seconds is enough of time for cutting off a thigh; but then you must know how to do it. Sixteen seconds gain of time to you in sawing a bone, may be sixteen months of misery to your patient; let time therefore be a secondary consideration. If you think, gentlemen, you can saw bones by intuition, you will err; it requires practice, like every thing else. If you wish to learn how to saw the bones of living men in an artistlike manner, buy a couple of broomsticks, and saw them off by inches, under the directions I have given for the management of the saw; you will then be qualified to try your hands on dead bones, and after that on living ones.

It is possible to succeed in saving thighs fractured any where except at their extremities, by attention to all these things, if you have at hand all the necessary appliances of surgery; but if you have not, and the sufferer must be kept in a constant state of motion and of irritation, you had better cut off his thigh; or, as a brave, but unfortunate, French officer said to me at Salamanca—pray sir, kill me in any way you please, but do not, in mercy, let me die by inches.

Splints for fractured thighs must be of three kinds, with proper pads for all of them, and the material to make the pads should accompany them in considerable quantity. 1. Long Dessault splints improved. 2. Amesbury's leg and thigh splints, to be used straight for the thigh. 3. Common solid wood and tin splints. 4. Ordinary one yard roll-up measures to take the length of the thigh and leg from time to time; although, in compound fractures of the thigh, extension is of little or no use at any time, and of none after the first fortnight or three weeks; on account of the consolidation, and thickening of the soft parts, which after that time do not admit of any yielding, although the bones may not be united by ossific matter.

FIFTH CLINICAL LECTURE.

ON THE EXCISION OF THE HEAD OF THE THIGH-BONE.

Delivered January 13th, 1838.

When the head or neck of the femur have been injured by musket balls, the patient has never escaped with life to my knowledge, unless after amputation. He does not die, however, immediately, but lingers for two, three, or even more months, and at last sinks worn out by suffering. The bone I now show you is that I removed in my successful amputation at the hip-joint after Waterloo at Brussels. The ball struck the neck immediately below the head, and went through and out behind; the bone is split nearly perpendicularly, and is separated from the shaft by a triangular point or apex exactly two inches below the small trochanter. The great trochanter and the rest of the shaft were not broken. I am not sure that if the head and broken piece had been removed and the shaft sawn straight, he might not have recovered; as he can, however, walk very well, I suppose he is as well satisfied that he did not take the chance. There was one other case at Brussels, in which I wished to do this operation. I urged it on the man, a French soldier, for several days, but he refused until finding himself sinking, when he consented. It was too late; when I gently stated this to him, he thanked me, a tear for the moment glistened in his eye, he waved his hand once more over his head, and cried out, *Vive l'empereur*. He died a few hours afterwards.

The bone I now show you is one to which I wish to draw your particular attention. The ball entered high up on the thigh near the groin, and lodged in the neck of the thigh-bone; it gave rise to ulceration of that part, of the head, and of the shaft near it, but it did not break or splinter the bone itself; the man however died. The removal of the ball alone would not have saved him, but I am satisfied the removal of the head and neck of the femur might have given him a better chance than he had by doing nothing.

The third and fourth preparation I now lay before you, show a greater degree of mischief, and a larger quantity of new-formed bone, indicating that the fracture had extended into the trochanters. In the fifth preparation, the fracture is too far below the head and neck of the bone to admit of any operation but that of amputation.

I have been long acquainted with a nobleman, who was sent to Lisbon by Mr. Hunter, near fifty years ago, for ulceration of the cartilage and head of the thigh-bone, which eventually was drawn out of the socket as the capsular ligament gave way, and has formed an attachment with the ilium. The joint is stiff, the leg is

some three inches shorter, but he walks about on the toes of that side with no further inconvenience than the limp occasions.

Mr. White, my colleague at this hospital, removed the head and neck of the thigh-bone in a young person, by a very simple operation, after it had been dislocated by the same disease, because it was evidently causing great irritation, instead of forming a false joint as in the former case, and would eventually have found its way through the soft parts. The lad recovered.

A due consideration of these cases led me to think that if nature could, by certain slow processes, arrive at such a happy result, it might be possible, in gun-shot fractures of the head and neck of the bone, to give her that assistance by art in effecting a cure which she has hitherto seemed unable to obtain without it. This assistance is the early removal of the head and neck of the bone by sawing it across immediately above the small trochanter in all cases in which the nature and extent of the injury will admit of such an operation. In the bone I now again show you, and to which I have already drawn your particular attention, this might have been done with great ease by the surgeon, and I believe with little comparative suffering to the patient.

In order to do this operation with precision, the surgeon must make himself well acquainted with the anatomy of the parts by dissecting them himself. I have requested the demonstrators of anatomy in the school of the hospital, Messrs. Hancock and Hird, to prepare two limbs duly injected, to show it to you. One is dissected so as to allow every part to be demonstrated and divided in the clearest manner. Mr. Hird will have the goodness to divide as I name them. Observe, in the first place, two things, the great trochanter, and the round head of the bone in its socket, which is directly below, and a little internal to the anterior superior spinous process of the ilium. When the thigh is bent in the dissected state you see it rolling very distinctly; and in order to lay it bare for removal, the muscles, &c. around it must be divided. The first on the anterior and outer part is the tensor vaginæ femoris; you see Mr. Hird now dividing it; outside this the glutæus medius must be cut, going to be inserted into the upper and outer part of the top of the great trochanter; deeper and between these two last, you see the glutæus minimus winding forwards to be inserted into the anterior portion of the same part. Cut the great glutæus through backwards in a curve, and you see the insertions of four muscles at one part, viz. the pit or fossa immediately behind the great trochanter, (I now show it to you in the dry bone); these are the pyriformis, the gemelli reckoned as one muscle, the obturator externus and internus; they should all be cut through within half an inch to an inch from their insertion. The square muscle you see below them, running from the ischium to the inter-trochanteric line I now show you is the quadratus femoris. It cannot be spared. The thigh-bone now rolls in Mr. Hird's hand easily, and you see the head moving in the socket on the back part where the small muscles were divided. He

now opens into the joint with the greatest ease at this part, and by a little rotation of the knee inwards, the head of the thigh-bone is readily dislocated downwards and outwards. The round ligament, and the remainder of the capsular ligament, must now be divided, keeping the knife close to the bone. You have now every thing exposed that I should have wished to remove, and ready for the saw, in the particular case I have shown you, and to which I have considered this operation so applicable. Let us pause a moment before we apply the saw. Two strong muscles are inserted into the small trochanter, the *iliacus internus* and *psoas magnus*, and I am desirous that this insertion should remain unhurt if the fracture should not extend below the little trochanter. It is not necessary to injure them, and they may be of great use afterwards if the operation should prove successful. If the neck of the bone is broken through, rotating the thigh as I have directed may not assist much in dislocating its head; but then, if the separation is complete, the separated piece can readily be detached, when the object will be easily attained. The sawing is as you see accomplished with the greatest ease. The arteries divided are all of small size; they are filled with red injection, yet you can scarcely see them, and they could not give any trouble, for the wound is so large as to give easy access to every part, and to admit of any bleeding vessel being tied without any difficulty. The round ligament should be cut off close to the socket, and any portion of the capsular ligament which can be quickly removed with it, but no time should be lost in trying to remove the cartilaginous cavity itself, which will be gradually absorbed. The sawn end of the femur should now be brought up into the cavity, and kept there if possible with the hope that it may become rounded, and adhere by a new-formed ligamentous structure in the same manner as the end of the humerus does to the glenoid cavity of the scapula, when similarly treated. The edges of the wound are then to be brought in apposition, and retained so by two or three sutures. The *glutæus magnus* slides over the trochanter major, having a bursa between them, and this part will not readily throw out healthy granulations; I am therefore less solicitous about the accuracy of the apposition of the edges at the under part through which the discharge will the more easily pass; the outside must however be supported by sticking-plaster and a compress to prevent any bagging, and to keep all parts in contact.

Let us now do the operation on the undissected opposite limb. The first cut through the skin or integuments and *fascia lata* should be a curved one, beginning just over the inner edge of the *tensor vaginæ femoris* muscle as you have seen on the other leg, curving downwards and outwards, so as to pass across the bone an inch at least below the trochanter major; when it should curve upwards to the extent of three inches or more, as the size of the limb may require. This first incision should, when complete, divide in addition to the integuments, the *fascia lata*, the *tensor vaginæ femoris*, the *glutæus medius* and *minimus*, and the great *glutæus* muscle. The

flap thus formed must be raised or turned up by an assistant to enable you to get at and divide the parts below in the order I have named them before. You are not to stop to tie any bleeding vessel until the operation is finished, and little or no blood will be lost.

Let us pause again. You have just done one half the operation as to cutting, for removing the whole limb at the joint: and if you should now find that the bone is so much shattered in the shaft, that you cannot hope to save the limb, there is no difficulty in removing it. Place your long knife inside the bone, with the middle of its edge resting against the outer edge of the iliacus and psoas muscles, and at one firm cut of a strong hand let it cut its way inwards, forming an inner flap; your assistant steadily compressing the femoral artery against the bone above. The femoral artery and its great profunda will both be divided: you seize them with the finger and thumb of your left hand, and place a ligature, or assist in placing one on each branch with your right; or, if the trunk of the profunda should have been cut very short, you may tie the main trunk of the femoral. Let your ligature be a single thread of strong dentist's silk, with which I have successfully tied the common iliac, and you need not be afraid of its not holding fast, if you tie it reasonably tight. The idea usually entertained, that a great artery cannot be closed by the ordinary process of nature under a ligature, if a branch is given off near it, is, I believe, erroneous. I never placed reliance on this opinion, and I now show you the common iliac artery of one of the two cases in which I tied it successfully, the patient dying a year afterwards, and you may see it is tied about an inch from the aorta, and was pervious on each side of the ligature, which has closed the vessel to no greater extent than its own width, proving all the facts I have mentioned to you so frequently on this subject. As to the smaller vessels, they will give you no trouble, being easily commanded, each by the point of a finger.

I have not done this operation on a living man, but *you must do it*, and I am sure you will in the end succeed. You ought not to be allowed to take out a limb at the hip-joint, unless the head and neck of the thigh-bone are injured; and you ought not to take it out if they are, unless the shaft of the thigh-bone is irreparably implicated also. In all such cases the inspector-general should see the bones, as well as have the other particulars of the case. I give, gentlemen, the experience of former times, matured by the practice of twenty years in this hospital, and by a due consideration of all that has been done by my contemporaries. It is for you to surpass us, to show that surgery is never stationary, and to prove that it is as much a science as an art.

The fifth portion of the femur, or that which forms its lower end and condyles, entering into the composition of the knee-joint, is the least amenable to surgical treatment. In the present state of our knowledge, and after the trials which have been already made in vain, I do not recommend the excision of the knee-joint, and ampu-

tation is then the sole resource, in cases which are incurable by ordinary means. I have endeavoured to bring under your observation those cases which generally require amputation when the knee-joint is injured, and those in which an attempt ought to be made to save the limb. See page 379, *et seq.* of my work on gun-shot wounds, to which I must refer. The lower part of the femur, just above the condyles, admits of a particular injury, from its softness, which does not occur at any other part. A ball may pass directly through, without causing any other injury, or scarcely any longitudinal fracture; so that the sufferer walks after it as if the bone had not been broken. Captain St. Pol, of the fusiliers, was wounded in this manner by a musket-ball at the foot of the great breach, on the night of the assault of Badajos. You will find his case, terminating in death, page 237 of my work on wounded arteries, to which I refer you. The ball struck him in the ham, passed through the thigh-bone in the middle, just above and between the condyles, and fell into the cavity of the joint, from whence it was removed. The hole in the bone was only large enough to allow the ball to pass through, and a small fissure extended upwards from it for above three inches. He died from mortification, the popliteal artery having been also divided. I fear he lost his life from excess of kindness; for the surgeons of his regiment were much attached to him, and I knew him very well, and yielded to their solicitations to try and save his limb, or at least give him a chance for a secondary amputation. They did this against their better judgment, and so did I. It was the last case in the Peninsula in which I did not insist on immediate amputation, on the occurrence of gangrene after a wounded artery, although I admit it was not the last in the army, and that one even of a similar nature occurred at Toulouse, but against my express orders. His Majesty Louis Philippe, king of the French, when he was in England, during the French revolution, studied mathematics it is said, with great success, and taught them in a very satisfactory manner. Continual occupation in squaring a circle, however, could not but be onerous; it was "*toujours perdrix*," and his majesty relaxed a little occasionally in other less severe studies of nature, his capabilities in which, and in calculating nativities, were soon exemplified, it is said, by the appearance of poor St. Pol. I do not know whether he was like him, but he was a very handsome, agreeable young man, who conducted himself always like a gentleman and a soldier, and died much lamented.

On the subject of fractures of the leg I must refer you once more to my work on wounds, begging you to recollect that all I have said in these lectures with reference to the arm applies as much in all practical points of surgery to the leg. The bones are equally exposed, the vessels are equally at command and under control; and a man should hazard a great deal before he should lose his leg, if he has a good constitution. I do not say to you that you should never amputate a man's leg on account of a musket-shot, which fractures the bones, injures the arteries, and does other mischief; but I do say

that it is a very great extent of mischief alone that authorises such a proceeding. You must read the passages I have written on this subject, and from page 257 to 261 in my work on wounded arteries, and operate as directed from page 384 to 388. I am aware that these things are but little taught in London, or, if they are taught, they are little attended to; but they are essential, and every man ought to know them, and he who does not is not qualified to hold her majesty's commission in the public service of the country. When I say these things are little attended to, I do so from finding it to be the fact in the examinations at the College of Surgeons. One of the last men I examined on these points was himself what is called a grinder, viz., a gentleman who crams others for the examiners, as old wives in the country do turkeys before Christmas for the cockneys. He knew little about the matter; but as I am always particularly lenient upon any point which I consider peculiarly my own, I let him examine me, instead of my examining him. It did just as well, and I dare say he will remember it longer.

When balls impinge with sufficient force to stick in a bone without splitting it, or go directly through, a great deal more attention should be paid to them than was generally given during the Peninsular war. This is one of the weak points on which we wanted another campaign in the south of France to perfect us; and it is therefore one to which you, gentlemen, if there should be, and when there shall be, another war, must attend to particularly. They should always be removed if possible; certainly so if the approach to them does not cause more danger than leaving the ball to the operations of nature. I have known balls stick in bones, and become covered up, and give no trouble; but I have very, very much more frequently seen the reverse. When a surgeon is acquainted with the anatomy of the parts, he is not afraid of making an incision of a sufficient size to enable him to feel, and perhaps to see the ball. If it is deeply imbedded, a trephine must be applied over it of such size as will include a common ball a little flattened. Where it sticks without being imbedded, a small chisel, straight or curved at the end, or a hook used as a lever, may often be got under it; but the judgment and ingenuity of the surgeon must be exercised on such occasions. Suppose a man to have received a ball, which sticks in the outside of the lower end of the femur above the joint: is it better to leave this to the efforts of nature, or to take it out? If left alone, the man will, in all probability, have an open wound for years, suffer much occasional pain, have an abscess formed now and then, and always have a reminding monitor of his wound along with him. If a sufficient incision, on the contrary, be made at first, on the day he receives the shot, through the vastus externus, down to the bone, and extending upwards far enough so as to allow it to be seen, whilst the parts are not adhering, and will separate easily, the trephine may be applied without difficulty, or the ball may be elevated and removed. The bone will not be diseased, and will in general recover from the injury without difficulty, and any

apparently splintered or injured parts may be at once removed. The man will soon get well, and be less lame than if no operation had been done.

Suppose the ball had struck the pelvis, or hip, just above the acetabulum, and sticks—what ought to be done? Make an incision upwards and outwards, not inwards, and of sufficient length to enable you to feel it easily, if not to see it. You must then remove it by similar processes, recollecting the thickness of the bones of the pelvis, and where they are too thin for much use of the trephine. Of balls sticking in the bones of the cranium we shall speak in our next lecture.

I cannot conclude this subject of injured bone without drawing your attention to three cases now in the hospital, two under Mr. White's care, one under mine. The first was a bad case of ulceration of the tibia, which had gone on for three years, and seemed likely to go on for ever, unless some more vigorous mode of treatment was had recourse to than had hitherto been adopted. Mr. White applied one part of the chloride of zinc, mixed with two parts of the sulphate of lime, made into a paste with water. The diseased bone was in part destroyed by this caustic, and a thick scale, the size of the paste, was separated, and came off. The first application was made on the 14th of October, and a second was had recourse to on the 7th of November, with the same effect, the scale of bone separating in fifteen days. The ulcer is nearly healed, and the man is almost well. In the second case, the tibia had been diseased for 31 years; the mischief was so great that the man begged to have his leg cut off. The repeated application of this remedy has been so effectual as to leave no doubt in my mind of its great utility in similar but less extensive injuries, for although it has rendered him a very essential service, I am not quite certain it will be able to effect cure, nevertheless, it will prevent, I have no doubt, the necessity for amputation. In the third case, which is that of a woman, the injury of recent date, and I have applied it solely for the purpose of causing the separation of a thicker scale of bone than is exfoliated by the unassisted operation of nature, and I recommend it to your attention in cases of ulceration of bone, commonly called caries, as one from which you will find the greatest advantage.

SIXTH CLINICAL LECTURE.

ON EXCISION OF THE ELBOW-JOINT.

Delivered February 10, 1838.

I have pointed out to you so distinctly the manner of excising the head of the humerus, that I do not think it necessary to notice it here. The excision of the elbow-joint I think it right to demonstrate, and to describe to you more clearly, so that you may find no difficulty in doing it.

The cases which require this operation are those in which the articulating ends of the humerus, radius and ulna, are wholly or in part so much injured, that little or no hope remains of a successful result. These cases have been usually submitted to amputation, on account of serious injuries of joints being rarely cured. The object of excision is to save the fore-arm, or at least to give the patient a chance of doing so; and the situation of the shot-hole or holes does not signify much as to the manner of operating. The principal point regulating the proceeding is to preserve the nerves entire; and the most important one likely to be injured is the ulnar. To avoid this, which lies between the olecranon and the internal condyle, but nearer to the inner condyle to which it may be considered to be affixed in passing by; a common straight, but strong pointed knife is to be pushed into the joint, immediately above and close to the olecranon process, exactly at its inner edge, near to, but at a safe distance from the ulnar nerve. The incision, thus begun, is to be carried outwardly to the external part of the humerus, dividing thereby the tendinous insertion of the triceps. From the end of this transverse incision a cut is to be made perpendicularly upwards and downwards, about an inch and a half each way, and the same is to be done at the other end of the transverse cut. The whole will now resemble the letter H, and the two flaps thus formed must be turned up and down. The olecranon may now be readily sawn off, with the great sigmoid cavity of the ulna, and the coronoid process, which must be separated from its connection with the brachialis internus muscle which is inserted into it. Before this is done the ulnar nerve must be carefully separated from its attachments and turned aside that it may not be injured. This exposes the joint effectually; and the head of the radius may now be cut through by the saw, or large scissors in cases of old standing disease, and separated from the lateral liga-

ment and the humerus, care being taken not to cut, if possible, the insertion of the biceps into its tubercle. The articulating extremity of the humerus ought now to be pushed through the wound, and the broken end sawn off or removed, so as to leave it quite smooth. The brachial artery and median nerve are out of all reasonable distance for injury, and to prevent the possibility of its occurrence, a knife or a spatula may be placed underneath, close to the bone and quite across, before the saw is applied; and any vessel which bleeds freely may be tied, although it is probable the hemorrhage will cease on the application of cold water. The articulating cartilaginous broken ends of the bones having been thus removed, and the hemorrhage having ceased, the fore-arm is to be bent, and the ends of the radius and ulna are to be brought in apposition with the extremity of the humerus. The incisions are to be brought together by stitches and sticking-plaster, duly supported by compress and bandage. Mr. Syme, who has paid great attention to, and has earnestly recommended this operation, strongly advises that strict attention should be paid to procure union, if possible, of the transverse incision, just above the olecranon; for a broad cicatrix interferes with the motion of the joint, a reasonable degree of which is always to be expected in a successful case. The arm should be duly supported by a proper sling. As the shot-holes must remain open, any discharge of blood or serum which takes place will readily pass through them. The first dressing should be early changed, and the incisions kept in due apposition, so as to offer every chance of union; but I do not think this of so much importance as has been attached to it. Passive motion should be early given to the parts, so as to favour the formation of a false joint; but this should be carefully and moderately done, lest too much excitement should take place, and a new inflammation be excited. A fixed or stiff joint is not to be desired, but if it cannot be avoided, it must be procured with the fore-arm at a right angle with the arm, when it will be most serviceable. The patient is best placed on his face on a bed or a table, which renders the steps of the operation more convenient to the operator; you must also recollect that when the bones are diseased from inflammation of any kind, they become soft and are readily cut with the strong scissors, but when they are sound, as in cases of gunshot wounds requiring this operation, they retain their natural hardness.

At San Antonio de Tojal, a circumstance occurred which it will be useful for those to know who may serve in hot countries. A soldier had suffered from bleeding for several days, in considerable quantity, from the mouth, which was perpetual; some was spit out with a little cough, some was swallowed, and neither medicine nor treatment seemed to have any effect upon him. He became greatly emaciated, and his death appeared to be inevitably at hand, although I could not discover any particular disease about him. On visit-

ing the hospital early in the morning, I enquired if he was dead, and was astonished at being told he had been quite well for two hours, and intended to live, for that he had coughed up a leech, which there could be no doubt was the cause of the bleeding, inasmuch as it had ceased from that moment. The man rapidly recovered. I was quite aware that in warm countries, in which leeches prevail, they are readily taken up by men and horses in drinking out of puddles, as thirsty animals, whether bipeds or quadrupeds, will constantly do. They are usually what are called horse-leeches, or of that kind which hold on and suck at one end and discharge the blood at the other; but they commonly stick about the lips, mouth, and throat, both in men and horses, from whence they are readily removed by the fingers or forceps. When they get above or behind the palate, they are still usually discovered with a little trouble; and when they could not, I never before or afterwards found much difficulty in dislodging them with strong salt and water injected through the nose, which, by its own virtue, and that of vomiting, had the desired effect. Whether this leech was in that place or not I do not know, but it certainly did all but kill the man.

Dr. Robb gave me the particulars of a case, which was afterwards confirmed by Mr. Maling, who said he saw it, which occurred in the light division, and nearly killed a man, who had been drinking out of a puddle, or out of a canteen filled from one, in a more extraordinary manner. The man declared he felt something move in his stomach the instant he had drunk, and from that moment his torments were unceasing, both from pain and from the alarm he felt at distinctly perceiving something trotting up and down his stomach. The man became pale, wan and miserable, and would have died, in spite of all the means employed for his relief, if he had not one day, at the end of about three weeks, vomited up a living animal, the cause of all his misery. The case is so well attested by the medical officers, who saw the animal before it died, that it cannot be disputed. They say it had four feet and a long tail, and called it a salamander, I presume from no medicine having any effect upon it, rather than from its really deserving that name. It was so large that it nearly choked the man in coming up, so that he was quite satisfied it had grown considerably after he had swallowed it, and it was admitted by all who saw it that if it had not, it could not have been swallowed without as much difficulty as was experienced in bringing it up.

I have already alluded to a little adventure we had on the road to Oporto, when we marched all night to surprise the French at Albergaria Nova. This we did, and I got some of the breakfast which was preparing for them; but we did not on the whole distinguish ourselves much after daylight. The wounded at this place, and at Grijon, passed under my observation, but gave nothing of importance; and I was not so fortunate as to gain much at the taking of Oporto, in professional information. We rather, if any

thing, retrograded. The French had collected all the boats on their, the nothern side of the river, and apparently considered them so secure, as not to think it necessary to place a sufficient guard over them. The consequence was, that soon after the British troops reached the southern bank of the Douro in Villa Nova, the suburb opposite Oporto, one boat was loosened and brought over. The soldiers immediately embarked, crossed, and brought back others, amidst the shouts and vivas of the natives. Sir J. Sherbrooke soon followed, with the whole 29th regiment; and the Portuguese boatmen having procured more boats, ferried me over with my horse. The alarm was perfect. The French, who appear not to have suspected such an accident, fled, leaving horses, mules, and baggage in all directions; every one took to his heels, and no one thought he could get to Oporto fast enough.

The inhabitants seemed afraid to touch any thing themselves, but called out to us to seize every horse and baggage-mule we saw as French. Being the only officer on horseback, I could ride about and take my choice of lots of loaded horses and mules, but I was much too proud to take possession of three or four mules with their baggage. It was not yet considered officer-like to deal in baggage, and so I occupied my time looking for some riding horses, until I lost the British, and was overtaken by Sir J. Milley Doyle at the head of the 16th Portuguese, looking for the English. I offered to show him the way, as they were only a little before us, and placed myself by his side at the head of his regiment. On turning a corner, I showed him the 29th Grenadiers, drawn up in line on the rising ground at the end of the road. They as soon perceived us, and after a minute or two, I saw Sir J. Sherbrooke himself face the Grenadier company towards us, and to my astonishment, they very quietly made ready as if on parade. Sir John and the Portuguese called out it was all over with them, and I thought so myself, for, knowing the old grenadiers very well, I took it for granted we were as good as dead. We were too far off to be heard in time, yet close enough to be shot, and it was quite plain they took us for French. I bethought me I had a red round jacket on under my blue undress coat, and as little time was to be lost, I stood up in my stirrups, and opened the blue coat as wide as possible, that none of the red one should be lost. The grenadiers at this moment came to the present; I thought we were gone; when in an instant I saw them irregularly changing to the recover; they knew me, and had called out the doctor and the Portuguese. I never was so delighted in my life; and galloped up to them forthwith. Sir J. Sherbrooke saluted me with, by God, sir, if you had not shown that red jacket, I would have sent you all in a second more to the devil. I knew Sir John very well, and hoped at all events he would have let us gone elsewhere, but he would not hear of it. No, sir, said he, I would have sent you to the devil; you should have gone there and no where else; and as it was well known that Sir John would always do what he said, as far as

depended on him, there was nothing to be done, but submit. From that day the Portuguese never went into action that I saw without a white band round the left arm. Shortly after this I accompanied the light troops to the front, and had a little skirmish with the French runaways, who were making their escape from the end of every street. Some of them brought out a gun, but on seeing us, and that the road was occupied, as it turned in front of us, they dismounted, and left the gun and the four mules that drew it. This I went to the left and seized, but what to do with a gun and four mules I did not know, more particularly after my failure in horse-stealing; so I settled the matter by taking possession of the best mule, which I carried off, and it served me very faithfully through the Talavera campaign.

Sir John Sherbrooke was a good-hearted man, although rather irascible, and was always willing to do a kind action. If the severity of physic and surgery would admit of a little descriptive episode, I would give you the appearance of the convents of Alisbaça and Batalha when first we saw them. It is better, however, to refer you to Mr. Beckford's book on Portugal, which is quite as characteristic as it is beautiful. He must have been a gastronome by his unbounded admiration of the kitchen at Alcobaça. It was, however, a good one, and the live fish did swim about in troughs, placed from one end to the other on the middle of the table, through which the river water constantly flowed; and the gardens were beautiful in the extreme. The padre guardian and the monks were always hospitable. They were obliged in those days by their charter to give a dinner and lodging to every traveller who passed and asked it, and about three half-pence on parting in the morning, and they received us with open arms on all occasions. The dinner was most joyous, the monarch and people of the respective nations were drunk with enthusiasm. I think I now see the jolly old fellows answering to our three times three with a thousand vivas; but they were not all old, and the young ones liked wine. On one occasion, when Sir J. Sherbrooke dined with them, one of the younger ones was also successful in making love; for the English ladies who accompanied the soldiers were not fastidious, and one of them could not resist the solicitations of the handsome monk. He was caught by the soldiers in a situation unhappily for him *pas douteuse*. They immediately placed him on one shutter and the lady on another, and marched them joyously round the cloisters, to the great amusement of the populace assembled at the convent to see the British. The next morning he had disappeared; his trial and punishment were summary; he had been sentenced to a slow death on bread and water, in a small stone cell, from which he was never to be withdrawn alive. The entreaties of Sir J. Sherbrooke prevailed not. The superior honestly admitted, that he would have forgiven the offence at the pressing entreaty of the English general, if it had not been so publicly manifested; but that the character of the order was at stake, and it must be as publicly

known that the punishment had been exemplary. Sir John kept up a correspondence with the padre, and after the battle of Talavera, the old gentleman wrote to congratulate him, in more than the usual complimentary terms of the nation. He assured him that he and his order, as well as all Portugal, owed every thing to his gallantry, and that they must ever bless the day that brought him to Alcobaca. Sir John Sherbrooke, with the characteristic feeling of an English gentleman, took him at his word, and wrote him back that he placed such implicit reliance on all he had said as to his feelings towards him, that he could not refrain in reply from asking him for the pardon of the young offending monk as the only, and, at the same time, the greatest favour he could do him. Sir John Sherbrooke, when he told me this story, declared he had felt that day to be one of the happiest of his life, when he received a letter from the superior, enclosing one from the young man, thanking him for his life, and stating the horrible imprisonment he had undergone, and the utter destitution of hope in which he lay, when Sir John's interference and his pardon were announced to him.

SEVENTH LECTURE.

ON THE DISEASES OF THE PENINSULA, TO WHICH THE BRITISH
TROOPS WERE EXPOSED IN 1811 AND 1812.

The war in Canada being likely to be brought to a happy termination, I need not trouble myself for the present with the remaining lectures on the injuries of the head, of the chest, and of the abdomen, which will, with what I have already written, complete the object I have in view,—of leaving you a record of the practice of the surgery of the Peninsular war.

The following document relates to the diseases of a portion of time of that period, and may be useful to future generals and inspectors of hospitals yet unborn; embracing, as it does, several questions of great interest relating to the health and welfare of an army, which are so obvious as to require no comment from me.

The Duke of Wellington, in the general orders of that army, and in his dispatches published by Col. Gurwood, has shown a strong preference for general hospitals, amounting almost to a prohibition of regimental, or brigade, or divisional hospitals; and has called the attention of general officers on more than one occasion to the disobedience of his officers on the subject. His grace mentions in other places the extreme difficulty he had to make officers of all ranks obey orders on any subject, each being pleased to think for himself upon all; so that it was not the doctors alone that incurred his displeasure. I am one of those who have reason to be grateful to his grace for the good opinion he has expressed of me in his dispatches; nevertheless this good opinion was gained by having always (at least whenever I could) acted in disobedience to the letter, but I believe not the spirit of his grace's orders on this point, as the document fully shows. I do not presume to question the propriety of his grace's decisions, but I shall take the liberty of enquiring into the grounds of my own disobedience.

The paper refers to the period from or about which Dr. Frank left the medical superintendence of the army, until shortly after its assumption at head-quarters at Freneda by Sir James M'Grigor. The medical department was during this period in charge of two gentlemen in succession; as worthy, honourable, and good men as ever lived. They were, however, like several of those military officers the duke has alluded to, fit for any ordinary affairs, but quite unequal to such extraordinary duty as that in the Peninsula. The consequence was that every body did as he pleased.

The question, however, may be justly divided into two parts; one of necessity, the other of choice. The general commanding can alone decide upon the first, and he may not always choose to

give his reasons at the moment. If he is in a situation, for instance, in the Alentejo, south of the Tagus, which he knows he intends to leave for the country north of that river, and at a considerable distance, he may not choose to encumber the troops on marching with a number of sick, or to leave the country studded with small detachments of them, to misbehave or act as they please. The establishment of regimental or brigade hospitals are under such circumstances forbidden for more than temporary purposes, or for those whose illnesses are not likely to last more than three or four days; the others he sends to the rear, by his return food and forage mules, their conveyance thus costing nothing. If the enemy are in such strength, and so near as to render an attack, or even a retreat, likely or possible, there ought to be no such things as permanent regimental hospitals; but upon these, and other matters of a similar nature, the general commanding can alone judge. Let us now suppose, what was a matter of fact at the period to which the paper relates, that the army was in cantonments for the greater part of the time between the Agueda and the Coa, a small French garrison being in Ciudad Rodrigo, and the bulk of their army at or beyond Salamanca. There being no reason, then, to fear a sudden attack, and nothing to prevent the formation of temporary regimental hospitals for a limited number of men, the only point to be enquired into, is, whether it was better for the sick and for the strength of the army, that they should be kept with their regiments, or sent to the rear? The general hospital for the army at this time was at Celorico, from whence some were sent to Viseu, and others to Coimbra, from which place they returned very slowly, and sometimes never came back at all. The inconvenience of sending a thousand sick men some forty miles is not great, and they can readily come back when well: but when the one thousand becomes several thousands, and the first station cannot receive them until the preceding sick are removed farther back, the inconvenience multiplies in many ways. The advantages of a regimental hospital are, that persons who are only slightly ill get well in a few days without leaving their regiments; that when they are suddenly attacked by serious diseases, they are well attended to from the first, and their lives may be saved, although the convalescence may be long.

The disadvantages of a general hospital are, that the sick arrive in bad condition, frequently unawares, and when there is no accommodation for them; and they suffer accordingly. The medical officers generally have no particular interest in any of them, know little of the duties, the wants, or the tricks of the soldier, and cannot take the same care of them. The town of Celorico was a miserable place for a general hospital; although, perhaps, the best which could be selected; and with all the care which could be bestowed upon it, it was in my opinion so bad a place, that I always considered it an equal chance whether a really sick man ever came out of it again or not. The advantages of keeping the sick with the regiments at this period were so great, as to be irre-

sistible ; and I have no hesitation in expressing my opinion, that if the regiments I have referred to had not been treated in this manner, very few men would have kept the field. A curious proof of this was given before a committee of the house of commons. A serjeant of the 40th was adduced as an instance of a cure performed on a soldier from Spain, who had been rendered useless by the Egyptian ophthalmia. He stated that he left the camp near Torre del Mauro at the commencement of the period I have noticed ; that the general doctor was a hard-hearted man, who would not let other poor fellows similarly afflicted go to the rear, and only allowed him to go in the place of another non-commissioned officer. I happened to be present and heard the story, acknowledged myself to be the hard-hearted doctor, and proved to the satisfaction of the committee, by the testimony of the general of the division and the surgeon of his regiment, that he had only a common inflammation of his eyes, that the others all recovered, and that he was the only man who had contrived to get away. If I had allowed the others to follow him, few would have remained in the field under privations in bad weather ; and it would have been just the same with other complaints.

My accumulation of sick at last, however, got me into a scrape. In February the adjutant-general sent for me to know why I had so many sick and wounded, and what I meant to do with them. I told him that they were much better with me than at Celorico, provided they were not in danger from the enemy ; and he allowed me to keep them on my own responsibility for moving them when the order for the march to Badajoz should arrive. To do this when the order came, I was obliged to give the division in charge to the senior regimental surgeon, and to go myself with the last of my worst cases to Celorico, in order that I might ensure attention to them. I had several days previously warned the principal medical officer at that station of the number he had to provide for ; but the other divisions had sent their sick before I arrived with the last of mine, and there was no room, and less disposition to meet a difficulty. My sick were also very ill, and seventeen died in the first two days, which was not more than I expected. It sufficed, however, for a report which Sir James M'Grigor had received upon the back of another, that one of the regiments of my division had got the itch, that there was no staff surgeon, and no itch ointment. The colonel had reported to the brigadier ; he had done the same to the general commanding the division ; the general to the commander of the forces ; who signified his displeasure to Sir James M'Grigor, who had to send post to Abrantes and elsewhere for itch ointment, in which the regiment rejoiced for three days, having halted accordingly. I arrived at Elvas, having laboured and traveled as hard again as any body else, just as those gentlemen had got fairly out of the itch. You may conceive my astonishment when I heard of it, and of the absurdity of the whole affair. I bethought me with great regret of the curry-combing I would have given them, if they had ventured to have had the itch until it was

convenient to me to cure them, if I had been with them. The seventeen dead men, in addition to this, was too much; Sir James M'Grigor, whom I had seen but twice in my life before, and hardly therefore knew, told me very formally I was the worst officer he had, that I was totally unworthy of any trust, and must be sent to the rear, where I could do no more mischief. It happened luckily for me that there was nobody at hand to put in my place, and I was therefore, after due deliberation, informed, that as there was a senior at the siege of Badajoz, which had just commenced, I might go there, and try to do my duty better. When I arrived in the camp, those of the medical officers who had worked with me at the two previous sieges of Badajoz and Albuhera, at the affairs of Elboden and Saca Parte, and who knew I had lately done half the duty of the siege of Ciudad Rodrigo, instead of a quarter, because no one else would do it; and had nearly killed them as well as myself by pure hard work, during the previous year, fairly laughed at me. The assault of Badajoz followed; my division suffered most, we lost 1200 men, including the general commanding, Sir C. Colville, who was seriously wounded in the thigh. The doctors worked this time, however, in a manner that Sir James M'Grigor was pleased to acknowledge; and to say that he believed he and I must be friends. I was very glad to accept the offer, although I knew I had not merited the reproof. I told him I was happy to have so far gained his approbation, which I would beg leave to set off against the itch; but that as to the seventeen dead men, I could not feel myself at ease until he had the fullest explanation on that subject also. The remarks that follow were that explanation; they were forwarded to him the May following from St. Joao de Pesquiera, on the Douro. The return I have already published in my first work, will show that regimental hospitals were at least approved of by him as much as by me.

The diseases of Spain and Portugal, on the southern and western frontier, in summer and autumn, very much resemble those of hot climates in general, and the nearer the approach to the south, the greater is the similarity; so much so, that I have frequently seen fevers at Gibraltar, Cadiz, and in the plains of the Guadiana, in every respect agreeing with the description given of the bilious, remittent, and yellow fevers of the West Indies and of the American States. As sudden and violent in their attack, as rapid in their progress, running the same train of symptoms, and leaving frequently the same results.

The difference of heat between the plains of Castile and of Estremadura is not very great: in the hot months of July, August, and September, the rivers and tracks of torrents from the neighbouring mountains are nearly dry; and they run generally in valleys or low grounds, which were marshes in winter and spring, and afford, in the hot and dry months, a large decomposition of vegetable matter, which is greatly assisted by the violent heat of the day and the great dews by night. The extreme heat also predisposes much

to disease; of which the natives are so much aware, that they always, if possible, avoid exposing themselves to a mid-day sun; from whence arises their custom of dining at twelve, and taking their siesta, or sleeping for three or four hours afterwards, if their circumstances will permit; or they employ that time in various household concerns within doors. The British troops, on the contrary, never take the slightest precaution of the kind, or shelter themselves from the heat in their private occupations, and the necessities of a military life frequently demand their exposure; they, therefore, suffer much from the diseases prevalent in the country, or naturally predominating with the season of the year. In the wet and cold months of March and April, in the provinces of Portugal and of the western part of Spain, north of the Tagus, the obvious diseases are, synochus, inflammatory affections of the chest and limbs, and intermittent fevers, for the most part amongst those who had suffered in the autumn. These continue with the warmer weather of May; but in June, July, August, and September, the diseases more peculiar to warm climates show themselves with the excessive heat. The attack is more sudden, the excitement greater, and the determination to the head frequently excessive in the latter months. The effects of heat are combined with those of marsh effluvia, the fevers are remittent and intermittent: in many, the excitement, which is at first great, is soon, however, followed by extreme debility, general yellowishness of skin, excessive irritability of the stomach, great discharges of vitiated bilious matters, petechiæ, glassy appearance of the eyes, dilatation of the pupil, coma, and death in a very few days: but this aggravation of disease is infrequent, or runs a longer course to the north of the Tagus. The patient slowly recovers; has probably a paroxysm of intermittent from time to time, or only an occasional febrile uneasiness; does not recover the natural complexion, and, even when there is every appearance of convalescence, the least exertion will cause a relapse. In general, recovery is very protracted: frequently, after an interval of three and four weeks, the relapse would be sudden, and carry off the patient in a few hours; and in some instances the malady has been supposed to be apoplectic, yet the appearances on dissection did not warrant this conclusion. Dysentery, which in particular constitutions is also supposed to arise from heat and marsh miasma, is not a formidable disease during the summer months, and even in the first weeks of October, after the commencement of the occasional rains, nor until the month of November, when, with the cold and damp weather, the attendant fever has become typhoid, with great debility: it is then exceedingly dangerous, inasmuch as the means of cure, so successfully employed when the fever is simple, continued, or even remittent, are contraindicated by the extreme debility experienced in the cases of typhus not suffering a decided treatment to be enforced. The relief of the febrile symptoms, or means employed to obviate death from debility, frequently assisting in establishing a chronic state of dysentery, that eventually carries off the patient.

The fever, in the greater part of the admissions in the different regiments of the division, in the months of November, December, and January, was typhus mitior or gravior, depending much on the constitution of the patient. In the recruits and relapsed cases it was always the latter, and where the interval, or state of convalescence had been unfavourable, was generally unfortunate. In the month of February, with the return of spring, some inflammatory affections of the chest appeared, but in certain constitutions the fever soon became typhoid, and the event fatal.

The officers during this period suffered equally with the men, particularly from June to Christmas. Intermittent and remittent fevers, in the worst forms, were observed in several, and considerable subsequent derangement of the abdominal viscera; but, as they were all young men, generally of good constitutions, had the means of procuring good clothing, sufficiency of food, and shelter from the inclemency of the weather, during the siege of Ciudad Rodrigo; and in the subsequent month of January, few suffered from typhus, and none died.

The mortality amongst the inhabitants of the different villages, in the period alluded to, was greater than that of the troops, especially in the summer season, and in places where the soldiers were not constantly quartered; which may be accounted for from the wretchedness of their situation, and frequently from the want of appropriate remedies.

From the comparative history of warm climates, and from the experience of four years by the British army in Spain and Portugal, these diseases are known in autumn to be endemic, and that the natives suffer from them as well as the troops. They arise from the influence of excessive heat and marsh effluvia, and are to be avoided only by non-exposure to their exciting causes, more especially when the body is predisposed to disease. There are many circumstances exclusively connected with a military life that cause this predisposition, independent of the susceptibility natural to young persons in a foreign country, and in which their manner of living is perhaps totally altered. A combination of these causes has produced a disease so general amongst a certain number of people as to excite an idea of its being contagious, especially when it has occurred with troops that have been but a short time in the country. It is, however, now generally believed not to be communicable from one person to another, whilst it preserves the true remittent or continued form of fever arising from excessive heat and marsh effluvia. At a later period, when the influence of these causes has ceased, the body, on the application of other accidental exciting causes of fever, being in a state of predisposition for disease from the effects of former illness, is soon debilitated; the assemblage of symptoms thus produced denote what is called typhous fever, and a disease is formed, capable of reproducing itself by communication, as has been well marked here in several instances. In 1809, when the army suffered so severely in the plains of the Guadiana from remittent fever in September and October, and from dysentery and

typhus in the three subsequent months, I was in the habit of ordering two fresh orderlies daily, to keep up an establishment of sixteen from one regiment only. Every hospital was in the same situation; and, in the present instance, at the same period of disease, the troops suffered considerably, not only in men who had been some time with the sick, but in others who had come from some little distance in an apparent state of health.

During the spring and summer months of 1811, the fourth division was most actively employed, and much exposed to the wet and hot weather. In the month of August, during a march of sixteen miles, from Frontera to Crato, the heat was excessive, and one day so much so as to cause 300 men to fall out of the ranks. In September, the division was cantoned in the villages in front of Almeida, in the vicinity of the Turon and Duas Casas rivers; and it would appear, the effects of former fatigue, and the influence of heat and marsh effluvia, were great, and particularly observable in the seventh regiment, which was quartered on each side of the river; 203 admissions of fever occurring, of which three died, and 122 were sent to the rear.

From the 20th of September to the 20th of October, this corps suffered much from fatigue, privation of food, heat, and the occasional rains, which fell very heavily. During the time they bivouacked, 200 fevers were admitted, one died in regimental hospital, and sixty-three were sent to the rear.

From the 20th of October to the 20th of November, 156 fevers were admitted; six died, twenty-six were sent to the rear.

From the 20th of November to the 20th December, the division, on an advance to Ciudad Rodrigo, to prevent the entrance of a convoy, suffered much from every kind of hardship and privation; the weather being extremely cold, the easterly winds most piercing, and the troops hardly under cover, without proper clothing, and with a short allowance of food. Of the seventh regiment, 124 fevers were admitted; none died, thirty-two were sent to the rear.

To the 20th of January, 144 fevers were admitted; seventeen died, and twenty-three were sent to the rear. At this period the fevers were generally typhous, the debility great, and frequently those patients who relapsed from a former fever, after an intermediate state of convalescence, or who were almost in health, died in a day or two. In this month, during the siege, the division was much exposed, from the insufficiency of the quarters allotted to the troops, from the hard weather during the siege, and the heavy rains immediately following it.

To the 20th of February, 105 fevers were admitted; forty-one died, and eighteen were sent to the rear.

To the 20th of March, ninety-one fevers were admitted; nine died, and 158 were sent to the rear: the regimental establishments breaking up on the division marching to the south.

In the six months, there were 1329 admissions from all complaints: of these, 86 died in regimental hospital, and of which 75 were recruits; 427 were sent to the general hospital, including 320

fevers, of which 160 died. Of the 246 dead in the six months, 169 were recruits, out of 353 landed at Lisbon in June 1811; 77 were old soldiers, out of 1145: that is, nearly half of the recruits, and one sixth of the old soldiers.

The fortieth regiment, nearly under the same local circumstances, and of the same strength, suffered in a proportion somewhat less; having 1189 sick admitted into the regimental hospital from the 20th of March unto the 20th of September: of these, 869 were fevers, of which 446 were sent to the rear. In that period, 24 died in regimental hospital, 156 in general hospital. The fortieth regiment received 400 men from England in July from the second battalion, and these also suffered infinitely more than the older soldiers, and from the same causes as the seventh regiment; but, being a better sort of men in general, the mortality was not so great. Of 450 recruits, 102 died; of 1117 old soldiers, seventy-eight died in the six months; that is, nearly a fourth of the recruits, and a fourteenth of the older soldiers.

The third battalion of the twenty-seventh, nearly composed of Irish and of young men, during this period remained remarkably healthy, possessing no advantage over the others in local situation until December; and being rather inferior in every respect to the seventh and fortieth regiments in point of regimental economy: most of these, however, had been two or three years in the country, and the draughts they received were Irish boys, more accustomed to hardship, and less easily subdued by it. From the 20th of September to the 20th of March, there were admitted into the regimental hospital altogether 454 sick only; of which, 259 were sent to general hospital, eight died in regimental hospital, and fifty in general hospital.

In December, the twenty-seventh regiment, being nearly naked, were sent from the front to Coimbra, and remained away until the beginning of February, returning complete in every thing, but avoiding thereby the seige of Rodrigo, and the difficulties and hardship of the month of January; which, I think, had a great effect, both as to the prevalence of disease and the subsequent mortality.

From the 20th of September to the 1st of March, no man was sent from the division supposed to be in a dangerous state. On the 1st, the regimental establishments were broken up.

The state of the seventh regiment was always an object of concern and particular attention to the commanding officer, the general of division, its medical officers, and myself; and I believe every thing our means would permit were tried. They were, as much as possible, protected from the weather. Straw and hay mats were made, on every change of quarters, for the men to sleep on; their messes, and cleanliness of their houses, were rigidly attended to; the night guards and duties were reduced as much as possible; they were never allowed to occupy or remain in a house with a sick inhabitant. The blankets, as they came up, were given to the convalescent men in preference to the usual mode of so many per company. No man was put on duty unless perfectly strong. During the seige of Ciudad Rodrigo, near one hundred men, mostly

recruits, who were doing duty with the regiment, were left in their old quarters, under proper officers; and an additional sum was drawn from their pay to procure them a better mess. The assistant quartermaster-general and myself frequently examined their quarters, and gave more room if we thought they were confined; and the general officers of brigade and division frequently inspected the hospitals.

Judging from these circumstances, and the superior attention paid to the seventh regiment, they should have been at least as healthy as others, where the same strictness was not observed. This was, however, not the case; probably from their suffering the whole time the more combined operation of all the causes of disease; and which, under the existing circumstances, could not readily be avoided.

A fertile source of disease in this country, and which might readily be prevented, arises from the paying off the whole balance due to the troops whenever the money can be procured: thus furnishing them the means of being drunk for the greater part of three or four days, instead of purchasing daily or weekly such articles of subsistence as could be obtained, and which, in addition to the ration, would secure to them a breakfast in quarters. This fact is so notorious, that the surgeons, and even the officers who pay the money, generally consider an increase of sickness a matter of course.¹

Disease is also greatly aggravated by the mode of conveyance from the regiments to the establishments in the rear. This is usually effected through the means of the commissariat, either by mules or bullock cars, in or upon which the sick are exposed to the heat, wet, and indeed all changes of the weather. These conveyances even were not given as required, but as they could be spared: consequently, the sick can only be removed every three or four days; and, when the depot is six or seven leagues in the rear, it generally requires two nights on the road, (certainly with cars,) and, during these two days and nights, (independently of the exposure to the weather,) the attention paid to them medically, or to their accommodation at night in quarters, is but trifling: so that men who leave their regiment after an illness of a couple of days, especially in the autumn, during the prevalence of remittent fever, frequently die upon the road, or shortly after they reach the place of their destination. If they escape, their disease is, for the most part, certainly increased. But if each division had a competent conveyance of its own, the journey to the first hospital would be accomplished with one halt; and as, during the unhealthy season of the year, the troops are nearly stationary on one line of march, at that halting place the non-commissioned officer could secure a supply of straw or mats to keep them from the ground. The three spring waggons attached to the division are, from construction and other causes, independent of

¹ This was shortly afterwards put a stop to.

the insufficiency of their number, frequently useless, and a greater expense than a well-arranged conveyance would be on different principles.¹

The regiments in Portugal are kept up by draughts from the battalions at home, and, in obedience to the orders on the subject, are as much as possible draughted by complete files; attention I believe, being paid only to reject old men, or those who, from accident, are unfit for active service; and not much to the age and appearance of the young ones, in consequence of which many are sent to this country who are incapable of performing the duties of a soldier. This was very evident in the recruits, or draught, sent from the second battalion of the seventh regiment to the first, and who arrived at Lisbon in June, in number 353: of these, eighty-seven never joined the regiment, and the greater part of those who did join were totally unequal to the service required of them. They embarked in summer, left Lisbon in August, and reached their regiment on the 26th of September, at Fuente Guinaldo: having, therefore, been removed to a climate several degrees hotter than their own; marched three weeks with a heavy load they were unaccustomed to in the worst season of the year, and which they could not have done without injury even in England. The ration of a pound of meat, including bone, and a pound and a half of bread, or one pound of biscuit, is hardly enough for growing boys, if issued regularly; but, when three days' allowance is given at once, it is in most instances eaten by the morning of the third day; so that, until the next issue, which may not be until the evening of the next day, they are without food.² The recruits of the seventh suffered much from this cause; and they unfortunately arrived at a time (during the movement from Guinaldo to Sabugal) in which provisions were extremely scarce, and issued in small quantity; they had a great deal of fatigue, and lay out without blankets during some wet weather. Their bodies were naturally at this moment predisposed to disease; in many it was already formed; and the subsequent season of the year being most unfavourable to

¹ The master-general of the ordinance, Sir Hussey Vivian, has, with the consent of Lord Hill, laid the foundation of a corps of hospital conveyance. Twenty carts, on Mr. Cherry's principle, adapted for one or two horses, have been already ordered, with such improvements as Sir James M'Grigor and I could suggest. They are well fitted for all the slow work of an army, both with respect to the sick and wounded, and even for the conveyance of particular stores; but they are not competent to work in action, or immediately in front of an active enemy. From the manner in which this subject is now taken up by the authorities I have mentioned, I trust the foundation of the remaining part of the conveyance will also be laid, when the material of the British army will on this point be complete. This corps, when perfect, should furnish the necessary servants for the officers of the hospital staff, which it will be able to do without the slightest difficulty; except that of altering a bad custom, a matter which I honestly admit is one of great difficulty in every official branch in England.

² After the siege of Ciudad Rodrigo, the sick eat the bullocks of the battering train; and when they furnished 66 pounds of bone out of 96 pounds per quarter, I begged to have three quarters as two.

such subjects, it is reasonable to suppose they must suffer accordingly. In fact, they never did recover the injury they had sustained, were most miserable objects, and were as readily distinguished from the older soldiers as if they had belonged to another regiment.

The great heat in summer renders it desirable to load the soldier as little as possible: the blanket, or great coat, is therefore taken away; hitherto generally the former, to avoid losing the coat, which is only replaced once in three years, whereas new blankets are issued yearly, if they can be procured; but, from the difficulty of conveyance to the army on the frontier, the troops do not get them at a proper time. In my opinion, a soldier should be complete with blanket and coat by the 1st of October, to protect him from the cold and damps of the night, which are so great in a warm climate. The seventh regiment had not more than one blanket between two men in December, and were not complete in January; so that relapses could not fail to occur from that cause alone, for little assistance could be procured by the soldiers from the inhabitants; and occasionally, in fact twice during the winter, from the incidents of war, the little comforts they could procure were for a time taken away, rendering them, of course, more susceptible when exposed.

From a consideration of several draughts sent to this country, and particularly the inutility of the greater part of the 353 men sent in June to the seventh regiment, I would suggest the necessity of selecting men who have been some little time habituated to the life of a soldier, for the draughts to Spain and Portugal: or, if the want of men will not allow that to be done, of not sending out boys of seventeen and eighteen, especially if English, that have been brought up in manufacturing towns; as they are generally of weakly constitutions, have been little accustomed to hardships, do not readily bear them, and are, in fact, but a nominal increase of strength. The men chosen for this service should be embarked in October, in large transports or men-of-war, these being always the most healthy, from the greater facility afforded the officers in attending to the men, from their having a larger space to move about in, even with an equal proportion of tonnage, and from their always having fresh air in bad weather, the hatches being open, and a number of men upon deck; which cannot be suffered in small brigs of 150 or 180 tons burden, in which, with every care, they are generally wet, and much confined. On their arrival at Lisbon in November, I would recommend their being quartered in proper places in the vicinity, or within thirty miles, for three or four months, until they become a little accustomed to the mode of life they had to undergo, and which is very different from that of a soldier at home. They should be regularly messed twice a day, and examined daily in fine weather, in marching order. In April and May, by short marches, and frequent halts of two or three days, they might join their regiment; the same care being taken of them as to a meal of some

¹ Tents were subsequently supplied.

kind in the morning, when possible. They would now have had a six months' trial, and would be better able to support the privations and hardships they must experience during the campaign. In October their clothing should be completed, the days then being frequently hot and dry, the nights cold and damp: from the influence of which they should be carefully guarded. If this or some other cautious method were adopted, I think the health of the army would be much improved, and very many lives saved. In the instance of the seventh regiment, I have little doubt but that one half, or perhaps 200, of the original number, would have been effective under the plan proposed, instead of forty-two, the number now present with the regiment.

The climate of Portugal is too much valued in England for qualities it does not possess: indeed, it appears to have been little known beyond the neighbourhood of Lisbon, until within these few years. The advantages generally enumerated are taken from the vicinity of the capital, and these are very much overrated. The whole of the east of Portugal, and the parts occupied by the British army north of the Tagus, are more unhealthy than any part of England. In July, August and September, this occurs from the intense heat, and the evaporation and decomposition of vegetable matter in the marshy grounds and courses of rivers: in November, December, January, February, and March, from the heavy rains, cold winds, and frequent changes of weather, which are particularly felt, from the houses in general, and especially on the frontier, being badly built, possessing neither chimneys nor windows, by the aid of which an equal degree of temperature might be supported. The unhealthiness of September and October is proverbial in Estremadura. April is very changeable: so that, in fact, May and June are the only favourable months for invalids: and the latter month is frequently very hot. Upon the whole, the climate of this part of Portugal is almost always unfavourable for the re-establishment of health after fevers; is particularly so after chronic or visceral diseases; and, from its frequent and great vicissitudes of weather for six months in the year, with the impossibility of counteracting them by artificial means, is adverse to pulmonary and rheumatic complaints.

Neither consumption nor scrofula are prevailing diseases in Portugal, particularly in the neighbourhood of Lisbon. Cases of both do occasionally occur, but they are by no means so frequent as to render them more than accidental, which shows the little predisposition of the Portuguese for them. They are, however, during the great heat in summer, liable to hæmoptysis, under any violent exertion, but which is usually subdued by mild treatment, and the proper functions of the lungs are restored without much difficulty. The constitution and mode of living of the Portuguese do not dispose them to suffer from inflammatory diseases; and the greater clearness of the atmosphere, and the equality of the seasons near Lisbon, together with the want of tone of the whole system, render inflammatory affections of the lungs less violent, and more easily

cured, than in England. There is also little or no hereditary predisposition for pulmonary disease among them.

For such information as I can collect from my acquaintances in civil life, as well as from my own observation, it would appear that persons visiting Portugal from colder climates, with only a predisposition of phthisis, or with tubercles in a nearly quiescent state, or not in that of suppuration, to receive some benefit from the sea voyage and change of air; but, when suppuration and ulceration have taken place, which is the case in most persons sent from England, the result is almost always fatal in as short a time as if the experiment of change of climate had not been tried. I now know several cases deteriorating as fast, during the last two months, as I conceive they would have done, with due caution, at home. Chronic coughs are always benefited by a residence in this country.¹

I have shown you that the person called by the soldiers the "general doctor," ought to know something of physic as well as of surgery, to do his duty properly; and I will now show you, he ought to be able to do other things besides.

Sir Lowry Cole having returned to the 4th division from England, we entered Spain for the Salamanca campaign, during which I had no occasion to provide for myself, having experienced the advantage of his hospitality and kindness from the battle of Abuherra until we afterwards parted at Madrid. I have already told you the medical staff officer is the only one of a division or corps-d'armée who does not usually live with the general in the field, a custom which ought to be abrogated for the good of the service. It is a great hardship on a general to be obliged to feed his staff of half a dozen persons, as well as himself, out of the very moderate pittance allowed to him; but it is very advantageous for the service of the country that he should always have these officers about him, and ready for immediate use. It is not only, however, necessary that a corps should fight, but that it should be kept in health to fight; and the general and the doctor will do this much better together than either of them separately. The public should then make the general an allowance for every officer of his staff, under the head of table money, totally distinct from his pay, when before the enemy or in an enemy's country. A general commanding a corps-d'armée or a division, should have at least £400 a year, and a general of brigade £200, for this purpose alone, whenever the officers of the staff live with him. He should, of course, have great weight in the selection of the medical officer thus attached to him, and the situation would be sought for by the best. It may be supposed that I am merely seeking for a comfortable situation for a doctor, which is not the case; I am trying on this, as on all points, to render the doctor capable of doing his duty properly towards the sick and wounded soldier. I know too well the misery to which both officers and soldiers are often reduced in a campaign, not to do my best to serve

¹The last two paragraphs are taken from a report made from Lisbon, on various subjects, in 1803, and published in 1830.

them. I wish to have justice done also to the general officer, whose pay is totally unequal to the exigencies of his situation under these circumstances; and who cannot do his duty to his country as it ought to be done, without injury to himself. The people of Great Britain never think of these matters. Their representatives in parliament only take up the army and navy estimates, as it appears to me, to enquire how much more reduction can be made in them. I see, in the army estimates, a sum charged of *£*19s. 11½*d.* or something like it, for the person who pumps the water up at the Tower; but I cannot find any estimate for the gentleman who pumps at the custom-house, or at the treasury, or in any other civil department. I have several times asked my parliamentary friends both wigs and tories, for the annual estimate or account which is, I suppose, laid before parliament, of the manner in which the difference between the amount of the next and the gross revenue of the country is expended, but I have never been able to get it. I should like to see the expense of every exciseman in the country as fairly stated as that of the pumper at the tower. I should like to see the expense of every civil officer and their retirements as fairly stated as those of the officers of the army and navy; and I should much more like to see the scale equalised. I do not think the country would grudge the expense of the printing. I and others suffered, or at least we believe we did, for several years, a deduction from our pay on account of the fund for widows' pensions, on the order of the late kings, whose honour and faith we supposed to be pledged to the arrangement. There has, however, been no difficulty made about altering it; and now, if a poor unhappy widow, entitled to *£*50 a year pension, should happen to have three times that sum, the hard earned savings of a long life, or of her own, she is deprived at any time of her pension unless she is a lady of title, when an occasional exception can be made. If a pensioner on the civil list happens to gain three times his or her pension, no mention is made of taking that away. The king's honour and faith are said at once to be their protection; although they cannot protect the poor widow of a sailor or a soldier under similar circumstances. It is one of the disgraceful pieces of economy, of which the nation ought to be ashamed.

The army advanced from the Tormes to the Duero near Tordesillas with little comparative interruption, when the campaign effectually commenced. We saw the French army marching away from Tordesillas down the river on their right, as if they meant to turn our left, and our order was received to move in the morning. We usually breakfasted at half-past three, that is before ordinary daylight, so as to be secure of one meal in the day; but the cavalry had become so unquiet in our front during the night, that the baggage was packed before breakfast, and the infantry had only time to get under arms, before Lord Combermere and the cavalry came into Castrejon faster than they went out. The infantry, after some skirmishing, crossed the Castrillo in their rear, and formed in

line on the higher ground above ; and when the mist of the morning broke and cleared away, the light and fourth divisions found the whole French army was upon them; their troops, which had apparently marched away to our left in the evening, having counter-marched in the night. This brilliant infantry stood as unmoved as if it faced only equal numbers, and checked the French advance ; whilst V. Alten's cavalry and the artillery skirmished with them to our disadvantage. As the morning advanced the British army closed up upon our left, but not in time to prevent the French turning the two British divisions so completely as to bring twelve guns in their rear to bear on the roads by which they must retire. Sir L. Cole placed the six guns of the 4th division in position to engage them, and they occupied them so effectively as to allow the two divisions to pass under their fire, in parallel but distant lines, without injury. I have no knowledge of a single man being hurt by this fire, and thus we descended into the plain, crossing the Guareña. Distressed by the heat, the troops ranged themselves along the bank of the river to drink, and the French brought up their guns and formed on the hills immediately above and overlooking them. The sun shone as a southern sun alone can shine ; three divisions of British infantry basked in it, and washed their husky throats in the waters rolling almost directly under two and twenty guns ready to open upon them at the least sign. Each waited a move. The order was at last given ; the British rose, and, formed in line, two deep as usual, and then retired ; the duke and his staff passed at this moment at a canter from left to right, and the French artillery opened. I counted every gun of the two and twenty. The British infantry having retired in line for some distance, moved to their left, and the French artillery ceased firing. I had placed myself about a quarter of a mile in the rear with three spring wagons, on a rising ground, until the line had moved. The whole of the shot of the French artillery passed by and over us *en ricochet*, as the military term it, which means bounding along like a cricket ball. If there are only two or three going at the same time and on the same line, it is very easy to get out of their way, provided you keep your eyes wide open, and are not too much frightened.

As soon as the troops had passed, I trotted down with the spring wagons, to pick up the wounded, but there were none to be found. The twenty-two guns had done no mischief, as far as we could see, on the ploughed ground ; and as to the standing corn, it was not desirable to loiter too long in that, as there was now nothing between us and the French. If there were any poor fellows there, unable to move, they died of starvation. They had, however, the consolation of thinking, in their last moments, that their country would have assisted them if she could ; but that she had not the means. She could not afford the expense of a conveyance fitted for their service, and she left them, unwillingly, to the mercy of her enemies, or to the accidental compassion of her friends. The French did not fire upon us whilst engaged in this duty, and I was happy

in being able to repay them in the afternoon; when, worn with the exertions of a day of protracted labour, under an almost apparently vertical sun, which killed several, and particularly Portuguese, the French and British fourth divisions of infantry came into contact, the latter being supported by two squadrons of General Ponsonby's cavalry. The dragoons went up to each other at last at a walk; a trot or a canter, unless for a few yards, being pretty much out of the question; and in this manner they hacked away without doing much mischief. The infantry could hardly drag one leg after the other; yet, when nearly worn out, Sir L. Cole advanced in line, with the 27th and 40th regiments, to the charge. The French stood firm, and it was for a few minutes doubtful which party would turn tail and run away. It was at this moment of extreme anxiety, that an Irish lad, of the 27th, stooped in the front rank, and, picking up a large stone, threw it into the enemy's line, with a loud "hurrah, my boys." They were now so close, as to be almost able to cross bayonets—a thing so often spoken of, but so seldom done—when the French turned, to our great satisfaction, and walked off across the river. Our people were quite unable to follow; they had done their best in walking up to them, and could go no farther. The previous firing had killed several, and wounded many on both sides. Some of the French were unable to move, and fell into my hands; and, recollecting what had happened in the morning, I went forward, and called to them across the stream to send for their wounded officers and soldiers, who would be given to them by Sir L. Cole, the general commanding. Several officers and men came forward immediately, without arms: and you cannot conceive how we complimented each other. It was now late in the evening, and I had to dispose of all the wounded of the infantry. The doctors worked all night; and we got them off for Salamanca before daylight. I had just washed myself, and was making a hearty breakfast on some bread and water, when Sir James McGrigor came up to enquire if I had received his orders relative to the wounded. I told him I had not. He then desired they might go to Salamanca, whither they had already been despatched. The cavalry had received his orders, he said, but had not obeyed. He now asked if I had a spring wagon left. I replied, one; which he said he must have for Sir Thomas Picton, who was very ill. I remonstrated, saying, it was the only one I had or could get, and that if we had another fight, I could not move a single man. He promised faithfully to bear this in mind, and provide for me accordingly,—which, luckily for me, he was not able to do.

Marshal Marmont very scientifically wheeled us across the Tormes after this, in a manner you will find duly related by the military authorities, into the position in which we fought the battle of Salamanca. The town was now exposed, and as neither the general nor I liked to have our sick taken who were in it, and which appeared very likely to happen, I set off in the evening with all the mules we could unload of their bread, and corn, and spirits, in the division, to take them out of it. It was night when I had

effected this, and had crossed the bridge; the rain came down in torrents, the lightning flashed as closely as if it would strike one to the earth; my horse would not face it, and I did not know where the troops were. The prospect for the night was not very promising, when an officer's servant passed, saying he was going to the baggage, which was about three miles off to the rear; and that I had no chance of finding the division, although I might perhaps find the French. I thought it wiser, therefore, to go with him, and trust to the kindnesses of the clergyman and the ladies who sheltered themselves under his protection on these occasions. I found them all as happy and as thoughtless as possible. The two ladies were young, and had got their husbands with them; and our excellent clergyman, Mr. Jenkins, received me most kindly into a small tent of his own. We all partook of his supper, and parted apparently regardless of the morrow.

The distant sound of a gun, during our early breakfast, banished the roses from the cheeks of the ladies, and brought my horse to the door. The parting was difficult. The ladies, who were both very handsome and agreeable, were the pets of all the officers, except the general commanding, who always looked upon them with an eye of soldier-like severity. When the hour of difficulty came, he could, however, think of them in the kindest manner, as if by accident; and a captain and a subaltern were ordered to the rear to see the baggage in a place of safety, whilst the French were wheeling us over the plains of Salamanca, until our patience was exhausted. These officers were the husbands of the ladies. I assured them they were expected to remain until sent for; that I had heard the order given. They thought, however, that if I felt it necessary to go, they ought, and they followed me in a few minutes. I trotted them up to the smaller Arapiles hill, and in about two hours one Captain Prescott was killed, and the other, Lieut. Leroux, was shot through the body, from which he never recovered.

The general of division, Sir Lowry Cole, was shot through the left breast, the ball passing in immediately below the clavicle, and out through the shoulder blade. It grazed the subclavian artery, and altered the pulse in the arm of that side. There was the sixteenth part of an inch or less between him and immediate death. I had a Portuguese field officer's tent, which was given to me by General Turner, whose arm I had taken out at the shoulder-joint at the first siege of Badajoz; in this I received him; and the whole of the wounded officers and soldiers of the division collected around us. Many of the worst cases of the stragglers of the army, cavalry, and infantry, who were with difficulty moved, were brought to me on the second day; and between three and four hundred French, in the same desperate state, claimed my assistance. In the army the general-in-chief gets in great matters all the credit from the public, and bears all the blame, which is fair; but the inferior officers bear much of the blame individually when any is deserved in smaller

matters, and often obtain but little of the credit. I foresaw I should soon be in that predicament unless I exerted myself. I have told you that a wounded commanding officer of a regiment is next to nobody when away from his regiment; but a wounded general of division resembles a sick lion, being very likely to show his teeth and talons on a future day, and not to be neglected until he is dead. Presuming on his authority, I ordered all the medical officers and all the hospital establishments to join me from the division except two; and the commanding officers obeyed without a murmur, which they would not perhaps have done at such a moment, if they had not known I lived with and wielded the authority of the general on all medical points. My wounded were now safe, but the afternoon of the second day had arrived, and we were alone on the field of battle without even a bit of bread; not a man had stirred, for I had kept the slightly wounded to assist the bad cases, and would only move as a whole. Sir James M'Grigor could do little beyond acquitting me of blame, for the Spaniards promised every thing, but as usual *did* nothing, and he could only speak to them through an interpreter. They had given him the St. Domingo convent near the bridge, quite empty, and this he delivered over to me, with a much more valuable adjunct, viz. permission to badger the junta as much as I pleased in his name. The late Dr. Curtis, the Roman Catholic Archbishop of Dublin, was one of them, and their interpreter, although some of them spoke French; but I could speak French better than any of them, and Spanish quite as fast, if not as well, and I knew their ways too well to speak English. We complimented each other in good Castilian about Spanish honour and humanity, British valour and sufferings, until they declared there was nothing they would not give me. Every cart in Salamanca should go out forthwith for my wounded, every house should find a bed and bedstead until my hospital was completed. These promises they had made and repeated frequently during the last two days, but they went very little farther than giving the order. I persuaded them, however, at last, to give me over the two police officers who were to carry these orders into execution, and when I got them safe into the hands of the hospital serjeants, who were waiting on the bridge under Assistant-Surgeon Mahoney of the Fusiliers, who is now staff-surgeon at Edinburgh, I assured them they should never see the inside of their homes again until I got all they were ordered to find for me. They first seized every cart that came over the bridge from Salamanca, until we had got as many as we wanted to carry our wounded, and then I made them furnish the convent. In two days mine was the pattern hospital; everybody wondered, but nobody found out that this was all done by speaking French and Spanish;—that physic and surgery had nothing to do with it.

My poor Frenchmen were now my care. I had obtained an empty convent for them, but the junta would give me nothing but promises. The Spanish police-officers had complained loudly of

me, and I had been forced to give them up. Picture to yourselves near three hundred men and officers, desperately wounded, and dying by dozens, lying crowded on the bare stone floors, drinking and eating all I had to give them out of their shoes, and using these same shoes for other more unworthy purposes. Nothing could be more horrible; the stench was dreadful; humanity was never more outraged. The junta declared the town was exhausted, that they did not see why they should be farther plundered by the French than they had been, and that the sooner they died the better. My compliments were, I found, no longer of use; so I told them, in the best possible Spanish, they should remember that although the British army was in their front, things might change; and that, if the French came back, they would all be hanged to a certainty for their inhumanity. They were quite furious, and I almost thought they would murder me. They declared they would write to the duke, and have me punished severely. I assured them I hoped they would, provided they stated also the reason; for although the duke would not permit any impropriety of conduct towards them, he would not submit to his prisoners being so ill used; and that, if the French came, I would certainly leave a letter for their general, stating how they had treated his wounded. This seemed to make some impression, and the matter ended by my once more getting the officers to provide for them. It was but badly done; but these poor fellows although little given to praying, assured me they prayed for me, and that, if there was a God in heaven, of which some few of them seemed to have a doubt, their prayers would be registered in my favour. I have great satisfaction in thinking, that if there is even one of them now alive, he has me sometimes in his remembrance. One young officer, whose thigh was broken, and who heard me cautioning the assistant-surgeon who attended him about keeping it of its proper length, begged me to allow it to be an inch shorter, as that would ensure his retirement from the service to his home and friends. If another war should take place, I trust the statement of the horrible sufferings these poor fellows endured, and which many others underwent, will induce the highest authorities on both sides to agree to some measure, by which medical officers, purposely left with sick and wounded, shall not be detained as prisoners; and that such poor wretches as are rendered unfit for service, may be sent home, even without an exchange. Some months after the affair of Elboden, in front of Fuente Guinaldo, I rode over the ground, and found the skeletons of those who had fallen. I was curious in looking for the death wound in each; and in only one case out of twenty odd, did I fail to see the broken bone which had, in all probability, been implicated in it. Some of these must, I fear, have died of starvation, to whatever nation they belonged. The sun and rain had bleached the bones the vultures had picked clean.

The battle of Salamanca established the surgery of the British army nearly on its present basis. Our previous battles and sieges

had pointed out many faults, and had admitted of many improvements being made. They were all now tested. Sir James M'Grigor was indefatigable, and all his officers worked well.

My labours had not been in vain. I found on my arrival at Madrid, in October, that he had recommended me to the Duke of Wellington for promotion, and that I was now the chief of the army under the command of Lord Hill, composed of several divisions of infantry and cavalry, with a large and increasing general hospital in that town. The force under my charge was larger than that under his own immediate superintendence, but he knew it was impossible at Burgos to regulate in detail for those to the southward of Madrid, and he left me to my own resources, desiring only that I would send 500 sets of bedding from thence to Salamanca.

As the Duke of Wellington's situation before Burgos became desperate, ours at Madrid became critical; we could easily have beaten Marshal Soult in open field, but that would have been of no use to us, if the Duke was forced to cross the Tormes. It would have been as bad as a defeat; we therefore retired from Madrid, the French following us closely past the Escorial, and across the Guadarama mountains, into the plains of Castile. The order for the retreat came suddenly; but, living with Sir E. Packenham, who was sick, and commanded in Madrid, it was not unexpected by those who had shared his anxieties as to the fate of the army at Burgos. Whilst I was pressing our deputy commissary-general, and the Spanish intendant-general, to give sufficient conveyance for the removal of the sick to Salamanca, they were occupied in filling the Retiro with corn and flour, and with establishing in it a large magazine for the army.

When the order arrived, I found the deputy commissary-general on his way to the Retiro, determined to use all the means in his power to fill it with provisions. No arguments of mine would he attend to, and no more conveyance would he spare. We were now within hearing of the sentry, and I begged him to turn his horse back with me for a few yards, and then asked him if he knew the Retiro was to be blown up that very hour to-morrow. There never was a fellow so astonished. I trotted him back with me to Sir E. Packenham, who gave him his orders, and desired him to furnish mules to move the pontoons to the army. He protested he had not a mule; that he had given me the evening before the last 40 he had. Sir E. Packenham took them from me with regret, for he and I knew the pontoons would not be wanted, as a later despatch had informed him the army had altered its march, although it did not countermand the movement of the pontoons; the bottoms of which were knocked out about a league from Madrid, the next morning,—but the mules did not return.

My situation was more desperate than at Salamanca; the loss of an hospital of several hundred men would have materially injured the reputation of the army. What was to be done? I tried my old expedient, of speaking Spanish, only in a more daring way. I armed

all the orderlies and convalescents in the hospital, marched them into the principal market-place, and seized a dozen fine large four-mule wagons in the name of the Spanish government. The drivers pulled out their knives at once, and swore they would not go. The mob collected around us. I showed them several doubloons, and assured them the drivers should be paid to the last farthing; that the British army was about to fight for the safety of Madrid, that the hospital must be cleared to make room for the wounded; and I appealed to the honour of the Spanish nation. It was not in vain; the mob at last cheered me; I viva'd in return, and carried off the drivers with their wagons, amidst the acclamations of the surrounding populace. Two dying and two broken-legged men only were left in the hospital at Madrid.

A British army can march through an enemy's country without doing almost the slightest mischief, but it cannot retreat in a similar manner. Every man that falls out becomes in time a maurauder, and commits all sorts of mischief. The only thing to be done is to prevent their quitting their regiments on any pretext whatever, and this is to be affected by the greatest severity of regimental discipline. There are three very important personages on such occasions, the commanding officer, the doctor, and the drummer, armed with his cat-o'-nine-tails. If they do their duty, a retreat may in general be conducted in an orderly manner; but without their best exertions the thing cannot be done, and particularly if provisions are scarce, or are not duly distributed. In the retreat from Madrid, the surgeon of each corps marched with the rear of his regiment, and reported to me every sick man and every straggler within an hour after his arrival at the bivouac. I rode with the last of the infantry, and saw that no one was left behind. In this way we drove all the sick and all the lazy before us, and had descended the Guadarama pass but one day before I knew I had near 2000 of this description on their way to the rear, and who would plunder the country before them until they arrived at Ciudad Rodrigo. When we arrived within a march of Alba de Tormes, I obtained from the deputy-adjutant general, Colonel Rooke, since dead, one field and four other officers, who were desired to attend to my wishes; to these were added a deputy provost-marshal, and his whippers-in. At day ight the officers were at the bridge of Alba, and the provost and I were soon occupied in clearing out the town. Before mid-day all the sick were on their way to Ciudad Rodrigo in a compact orderly manner; more than a thousand men were added to the strength of the army, not one sick man fell into the hands of the enemy, to my knowledge, from Madrid to Salamanca, when my separate duty ceased; and I know that during this period the medical officers of the army did their duty in a very efficient manner.

General Napier has three times in his fifth volume commented on the officers of the medical department for negligence, and other faults of which they as individuals in Spain were not in my opinion guilty. If the country cannot give sufficient pay and allowances

for good and able men, it is not the fault of the doctors. If they will not reward them when they do their duty well, who is to blame? If they are refused the same indulgences, the same rewards, the same promotion as the rest of the army, how can the public expect them to be highly efficient? There is no one to blame but those who have the absurdity to run human life against a paltry economy of money. If, in defiance of all the remonstrances of all the doctors, there is no, or at best a very insufficient conveyance, in the British army on service for sick and wounded men, surely the doctors are not to blame; they can only represent. It is with others to act. General Napier's third remark follows his notice of the retreat from Madrid to which I have just alluded, and would therefore appear to apply to that service. If this should be the intention of it, the military reader has now the opportunity of judging how far it is deserved or not. The Duke of Wellington's opinion was that the doctors had done their duty well; and he was, shortly afterwards, in the hospital at Lisbon, pleased to express his approbation of it, and to declare before all the officers present, that he desired my conduct should be considered as worthy the imitation of the whole army.

I trust, gentlemen, you will see the advantages to be derived from attending early to other studies, besides physic and surgery.